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*** It is now 2009/07/16 12:13:47 ***
 (Dialog time 2009/07/16 11:13:47)

705TEXT1 is set ON as an alias for 15, 16, 160, 148, 621, 275, 634, 47
705TEXT2 is set ON as an alias for 9, 623, 810, 624, 813, 20, 636
705BIBLIT is set ON as an alias for 77, 35, 583, 2, 65, 233, 99
705NEWSBIB is set ON as an alias for 473, 474, 475
SOFTLIT is set ON as an alias for 256, 278
705ADLIT is set ON as an alias for 635, 570, PAPERSMJ, PAPERSEU
HILIGHT set on as ''  ''
DETAIL set off
KWIC is set to 50.
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? b
610,613,634,810,813,20,583,474,475,35,65,99,256,9,15,16,148,160,275,621,636,624,2,476, 635, 570, PAPERSMJ, PAPERSEU, 47,347,348,349

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>>>         476 does not exist
>>>1 of the specified files is not available
       16jul09 10:14:13 User264751 Session D621.1
            $0.00    0.247 DialUnits File415
     $0.00  Estimated cost File415
     $0.11  INTERNET
     $0.11  Estimated cost this search
     $0.11  Estimated total session cost   0.247 DialUnits

SYSTEM:OS  - DIALOG OneSearch
  File 610:Business Wire 1999-2009/Jul 16
         (c) 2009 Business Wire.
*File 610: File 610 now contains data from 3/99 forward.
Archive data (1986-2/99) is available in File 810.
  File 613:PR Newswire 1999-2009/Jul 16
         (c) 2009 PR Newswire Association Inc
*File 613: File 613 now contains data from 5/99 forward.
Archive data (1987-4/99) is available in File 813.
  File 634:San Jose Mercury  Jun 1985-2009/Jul 14
         (c) 2009 San Jose Mercury News
  File 810:Business Wire 1986-1999/Feb 28
         (c) 1999 Business Wire
  File 813:PR Newswire 1987-1999/Apr 30
         (c) 1999 PR Newswire Association Inc
  File  20:Dialog Global Reporter 1997-2009/Jul 15
         (c) 2009 Dialog
  File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13
         (c) 2002 Gale/Cengage
*File 583: This file is no longer updating as of 12-13-2002.
  File 474:New York Times Abs 1969-2009/Jul 16
         (c) 2009 The New York Times
  File 475:Wall Street Journal Abs 1973-2009/Jul 16
         (c) 2009 The New York Times
  File  35:Dissertation Abs Online 1861-2009/Jun
         (c) 2009 ProQuest Info&Learning
  File  65:Inside Conferences 1993-2009/Jul 14
         (c) 2009 BLDSC all rts. reserv.
  File  99:Wilson Appl. Sci & Tech Abs 1983-2009/Jun
```

(c) 2009 The HW Wilson Co.
File 256:TecTrends 1982-2009/Jul W2
(c) 2009 Info.Sources Inc. All rights res.
File 9:Business & Industry(R) Jul/1994-2009/Jul 15
(c) 2009 Gale/Cengage
File 15:ABI/Inform(R) 1971-2009/Jul 15
(c) 2009 ProQuest Info&Learning
File 16:Gale Group PROMT(R) 1990-2009/Jun 23
(c) 2009 Gale/Cengage
*File 16: UD/banner does not reflect last processed date
File 148:Gale Group Trade & Industry DB 1976-2009/Jun 30
(c) 2009 Gale/Cengage
*File 148: The CURRENT feature is not working in File 148.
See HELP NEWS148.
File 160:Gale Group PROMT(R) 1972-1989
(c) 1999 The Gale Group
File 275:Gale Group Computer DB(TM) 1983-2009/Jun 17
(c) 2009 Gale/Cengage
File 621:Gale Group New Prod.Annou.(R) 1985-2009/Jun 09
(c) 2009 Gale/Cengage
File 636:Gale Group Newsletter DB(TM) 1987-2009/Jun 23
(c) 2009 Gale/Cengage
File 624:McGraw-Hill Publications 1985-2009/Jul 16
(c) 2009 McGraw-Hill Co. Inc
File 2:INSPEC 1898-2009/Jul W1
(c) 2009 The IET
File 635:Business Dateline(R) 1985-2009/Jul 15
(c) 2009 ProQuest Info&Learning
File 570:Gale Group MARS(R) 1984-2009/Jun 23
(c) 2009 Gale/Cengage
File 387:The Denver Post 1994-2009/Jul 15
(c) 2009 Denver Post
File 471:New York Times Fulltext 1980-2009/Jul 15
(c) 2009 The New York Times
File 492:Arizona Repub/Phoenix Gaz 19862002/Jan 06
(c) 2002 Phoenix Newspapers
*File 492: File 492 is closed (no longer updating). Use
Newsroom, Files 989 and 990, for current records.
File 494:St LouisPost-Dispatch 1988-2009/Jun 19
(c) 2009 St Louis Post-Dispatch
File 631:Boston Globe 1980-2009/Jul 16
(c) 2009 Boston Globe
File 633:Phil.Inquirer 1983-2009/Jul 16
(c) 2009 Philadelphia Newspapers Inc
File 638:Newsday/New York Newsday 1987-2009/Jul 16
(c) 2009 Newsday Inc.
File 640:San Francisco Chronicle 1988-2009/Jul 12
(c) 2009 Chronicle Publ. Co.
File 641:Rocky Mountain News Jun 1989-2009/Jan 16
(c) 2009 Scripps Howard News
*File 641: This file has ceased updating
File 702:Miami Herald 1983-2009/Jul 16
(c) 2009 The Miami Herald Publishing Co.
File 703:USA Today 1989-2009/Jul 15
(c) 2009 USA Today
File 704:(Portland)The Oregonian 1989-2009/Jul 15
(c) 2009 The Oregonian

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  File 713:Atlanta J/Const. 1989-2009/Mar 08
         (c) 2009 Atlanta Newspapers
  File 714:(Baltimore) The Sun 1990-2009/Jul 12
         (c) 2009 Baltimore Sun
  File 715:Christian Sci.Mon. 1989-2009/Jul 14
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  File 725:(Cleveland)Plain Dealer Aug 1991-2009/Jul 15
         (c) 2009 The Plain Dealer
  File 735:St. Petersburg Times 1989- 2009/May 22
         (c) 2009 St. Petersburg Times
  File 477:Irish Times 1999-2009/Jul 16
         (c) 2009 Irish Times
  File 710:Times/Sun.Times(London) Jun 1988-2009/Jul 15
         (c) 2009 Times Newspapers
  File 711:Independent(London) Sep 1988-2006/Dec 12
         (c) 2006 Newspaper Publ. PLC
*File 711: This file does not update.  See NewsRoom for full
daily coverage from many European sources.
  File 756:Daily/Sunday Telegraph 2000-2009/Jul 16
         (c) 2009 Telegraph Group
  File 757:Mirror Publications/Independent Newspapers 2000-2009/Jul 16
         (c) 2009
  File  47:Gale Group Magazine DB(TM) 1959-2009/Jul 03
         (c) 2009 Gale/Cengage
  File 347:JAPIO Dec 1976-2009/Mar(Updated 090708)
         (c) 2009 JPO & JAPIO
  File 348:EUROPEAN PATENTS 1978-200928
         (c) 2009 European Patent Office
  File 349:PCT FULLTEXT 1979-2009/UB=20090709|UT=20090702
         (c) 2009 WIPO/Thomson

      Set  Items  Description
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? **s pd<20020213**

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>>>One or more prefixes are unsupported
>>>  or undefined in one or more files.
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      S1102245930  PD<20020213

>>> Retrying request [1]
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? **s s1 and ((distribute or distributes or distributed or distributing or distribution)(4n)(content or contents or music or musical or song or songs or media or multimedia))**

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Processed  50 of  51 files ...
Completed processing all files
        102245930  S1
         1425545  DISTRIBUTE
          886541  DISTRIBUTES
         5661193  DISTRIBUTED
          771739  DISTRIBUTING
        11360180  DISTRIBUTION
         7431452  CONTENT
         1390655  CONTENTS
         5582264  MUSIC
         1587694  MUSICAL
         1395369  SONG
         1140302  SONGS
        14923984  MEDIA
         2270850  MULTIMEDIA
         1251163  ((((DISTRIBUTE OR DISTRIBUTES) OR DISTRIBUTED) OR
                  DISTRIBUTING) OR DISTRIBUTION)(4N)(((((((CONTENT OR
                  CONTENTS) OR MUSIC) OR MUSICAL) OR SONG) OR SONGS) OR
                  MEDIA) OR MULTIMEDIA)
      S2  210207  S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
                  DISTRIBUTING OR DISTRIBUTION)(4N)(CONTENT OR CONTENTS
OR
                  MUSIC OR MUSICAL OR SONG OR SONGS OR MEDIA OR
                  MULTIMEDIA))
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? s s1 and ((distribute or distributes or distributed or distributing or distribution)(4n)((digital or electronic)(2n)(work or works or book or books)))

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         1425545 DISTRIBUTE
          886541 DISTRIBUTES
         5661193 DISTRIBUTED
          771739 DISTRIBUTING
        11360180 DISTRIBUTION
         7141996 DIGITAL
        10448035 ELECTRONIC
        27646131 WORK
         7134703 WORKS
         7865637 BOOK
         5070028 BOOKS
            2869 ((((DISTRIBUTE OR DISTRIBUTES) OR DISTRIBUTED) OR
                  DISTRIBUTING) OR DISTRIBUTION)(4N)(DIGITAL OR
                  ELECTRONIC)(2N)(((WORK OR WORKS) OR BOOK) OR BOOKS)
      S3   1824 S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
                  DISTRIBUTING OR DISTRIBUTION)(4N)((DIGITAL OR
                  ELECTRONIC)(2N)(WORK OR WORKS OR BOOK OR BOOKS)))

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Set     Items   Description
S1  102245930   PD<20020213
S2     210207   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
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             IBUTING OR DISTRIBUTION)(4N)(CONTENT OR CONTENTS OR MUSIC
OR -
             MUSICAL OR SONG OR SONGS OR MEDIA OR MULTIMEDIA))
```

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S3       1824   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
DISTR-
             IBUTING OR DISTRIBUTION)(4N)((DIGITAL OR
ELECTRONIC)(2N)(WORK
             OR WORKS OR BOOK OR BOOKS)))
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? s (s2 or s3) and ((rights or license or licensing or licensed or licenses or licensed)(5n)(manage or manages or managed or managing or management))

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          210207  S2
            1824  S3
        10492005  RIGHTS
         3139601  LICENSE
         3081522  LICENSING
         2145204  LICENSED
         1384470  LICENSES
         2145204  LICENSED
         5074064  MANAGE
         1627326  MANAGES
         5611119  MANAGED
         6544662  MANAGING
        28433200  MANAGEMENT
          322423  (((((RIGHTS OR LICENSE) OR LICENSING) OR LICENSED) OR
                  LICENSES) OR LICENSED)(5N)((((MANAGE OR MANAGES) OR
                  MANAGED) OR MANAGING) OR MANAGEMENT)
      S4   10080  (S2 OR S3) AND ((RIGHTS OR LICENSE OR LICENSING OR
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                    LICENSED OR LICENSES OR LICENSED)(5N)(MANAGE OR
MANAGES
                    OR MANAGED OR MANAGING OR MANAGEMENT))

>>> Retrying request [1]
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? s s4 and ((update or updates or updating or updated or change or changes or changed or changing)(5n)(RIGHTS OR copyright or copyrights or LICENSE OR LICENSING OR LICENSED OR LICENSES OR LICENSED))

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Completed processing all files
           10080  S4
         5682361  UPDATE
         1338008  UPDATES
          566191  UPDATING
         1824890  UPDATED
        17557375  CHANGE
        14054067  CHANGES
         7039154  CHANGED
         4964061  CHANGING
        10492005  RIGHTS
        13442879  COPYRIGHT
```

```
          284652  COPYRIGHTS
         3139601  LICENSE
         3081522  LICENSING
         2145204  LICENSED
         1384470  LICENSES
         2145204  LICENSED
          376834  (((((((UPDATE OR UPDATES) OR UPDATING) OR UPDATED) OR
                  CHANGE) OR CHANGES) OR CHANGED) OR
                  CHANGING)(5N)(((((((RIGHTS OR COPYRIGHT) OR
COPYRIGHTS)
                  OR LICENSE) OR LICENSING) OR LICENSED) OR LICENSES)
OR
                  LICENSED)
      S5     382  S4 AND ((UPDATE OR UPDATES OR UPDATING OR UPDATED OR
                  CHANGE OR CHANGES OR CHANGED OR CHANGING)(5N)(RIGHTS
OR
                  COPYRIGHT OR COPYRIGHTS OR LICENSE OR LICENSING OR
                  LICENSED OR LICENSES OR LICENSED))

>>> Retrying request [1]
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? **s s5 and ((primary or main or first or initial or initially)(3n)(circulate or circulates or circulated or circulating or circulation or distribution or distribute or distributed or distributes or distributing))**

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             382  S5
         6256334  PRIMARY
        10330481  MAIN
        54999552  FIRST
         6567351  INITIAL
         3269809  INITIALLY
          125349  CIRCULATE
           50889  CIRCULATES
          320206  CIRCULATED
          384179  CIRCULATING
          981302  CIRCULATION
        11360180  DISTRIBUTION
         1425545  DISTRIBUTE
         5661193  DISTRIBUTED
          886541  DISTRIBUTES
          771739  DISTRIBUTING
          278678  ((((PRIMARY OR MAIN) OR FIRST) OR INITIAL) OR
                  INITIALLY)(3N)(((((((((CIRCULATE OR CIRCULATES) OR
                  CIRCULATED) OR CIRCULATING) OR CIRCULATION) OR
                  DISTRIBUTION) OR DISTRIBUTE) OR DISTRIBUTED) OR
                  DISTRIBUTES) OR DISTRIBUTING)
      S6      81  S5 AND ((PRIMARY OR MAIN OR FIRST OR INITIAL OR
                  INITIALLY)(3N)(CIRCULATE OR CIRCULATES OR CIRCULATED
OR
                  CIRCULATING OR CIRCULATION OR DISTRIBUTION OR
DISTRIBUTE
                  OR DISTRIBUTED OR DISTRIBUTES OR DISTRIBUTING))
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? s s5 ((secondary or additional or uncirculated or unpurchased or (non(w)(circulated or purchased)))(5n)(circulate or circulates or circulated or circulating or circulation or distribution or distribute or distributed or distributes or distributing)(5n)(content or contents or music or musical or song or songs or work or works or contents))

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>>>Invalid syntax
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? s s5 and ((secondary or additional or uncirculated or unpurchased or (non(w)(circulated or purchased)))(5n)(circulate or circulates or circulated or circulating or circulation or distribution or distribute or distributed or distributes or distributing)(5n)(content or contents or music or musical or song or songs or work or works or contents))

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382	S5
3101190	SECONDARY
15873162	ADDITIONAL
1985	UNCIRCULATED
1028	UNPURCHASED
13808923	NON
320208	CIRCULATED
3342354	PURCHASED
212	NON(W)(CIRCULATED OR PURCHASED)
125351	CIRCULATE
50889	CIRCULATES
320208	CIRCULATED
384183	CIRCULATING
981306	CIRCULATION
11360212	DISTRIBUTION
1425546	DISTRIBUTE
5661202	DISTRIBUTED
886542	DISTRIBUTES
771742	DISTRIBUTING
7431460	CONTENT
1390660	CONTENTS

```
         5582339  MUSIC
         1587719  MUSICAL
         1395396  SONG
         1140322  SONGS
        27646663  WORK
         7134786  WORKS
         1390660  CONTENTS
            6653  ((((SECONDARY OR ADDITIONAL) OR UNCIRCULATED) OR
                  UNPURCHASED) OR NON(W)(CIRCULATED OR
                  PURCHASED))(5N)(((((((((CIRCULATE OR CIRCULATES) OR
                  CIRCULATED) OR CIRCULATING) OR CIRCULATION) OR
                  DISTRIBUTION) OR DISTRIBUTE) OR DISTRIBUTED) OR
                  DISTRIBUTES) OR DISTRIBUTING)(5N)(((((((CONTENT OR
                  CONTENTS) OR MUSIC) OR MUSICAL) OR SONG) OR SONGS) OR
                  WORK) OR WORKS) OR CONTENTS)
      S7      29  S5 AND ((SECONDARY OR ADDITIONAL OR UNCIRCULATED OR
                  UNPURCHASED OR (NON(W)(CIRCULATED OR
                  PURCHASED)))(5N)(CIRCULATE OR CIRCULATES OR
CIRCULATED OR
                  CIRCULATING OR CIRCULATION OR DISTRIBUTION OR
DISTRIBUTE
                  OR DISTRIBUTED OR DISTRIBUTES OR
                  DISTRIBUTING)(5N)(CONTENT OR CONTENTS OR MUSIC OR
MUSICAL
                  OR SONG OR SONGS OR WORK OR WORKS OR CONTENTS))
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? **rd**

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>>>Duplicate detection is not supported for File 347.

>>>Duplicate detection is not supported for File 348.

>>>Duplicate detection is not supported for File 349.

>>>Records from unsupported files will be retained in the RD set.
      S8      25  RD  (unique items)
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? **t s8/3/all**

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>>> Retrying request [1]
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8/3/1 (Item 1 from file: 15)
DIALOG(R)File 15: ABI/Inform(R)
(c) 2009 ProQuest Info&Learning. All rights reserved.

02088220 63530351
Napster: Copyright killer or distribution hero?

Sherman, Chris
Online v24n6 pp: 16-28
Nov/Dec 2000
ISSN: 0146-5422 **Journal Code:** ONL
Word Count: 4918

8/3/2 (Item 2 from file: 15)
DIALOG(R)File 15: ABI/Inform(R)
(c) 2009 ProQuest Info&Learning. All rights reserved.

01980600 49070773
Case study: Document management for a SONGS

Keown, Joel
Inform v14n1 pp: 48-52
Jan/Feb 2000
ISSN: 0892-3876 **Journal Code:** IFN
Word Count: 3002

Dialog eLink: Order File History
8/3/3 (Item 1 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
(c) 2009 European Patent Office. All rights reserved.

01445561

System and method for managing copyrights and payments in connection with content distribution and circulation
Vorrichtung und Verfahren um Urheberechte und Zahlungen zu verwalten in Zusammenhang mit Inhaltsabgabe und -weitergabe
Systeme et methode de gestion des copyrights et paiements afferents a la distribution et la transmission de contenus

Patent Assignee:

- **MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.**; (216883)
  1006, Oaza-Kadoma; Kadoma-shi, Osaka 571-8501; (JP)
  (Applicant designated States: all)

Inventor:

- **Namba, Takaaki**
  6-1, Futakata-cho, Nishi-ku; Nagoya-shi, Aichi, 452-0817; (JP)
- **Matsuo, Takashi**
  7-20-2, Tsuchihashi, Miyamae-ku; Kawasaki-shi, Kanagawa, 216-0005; (JP)
- **Higashi, Akio**
  B-406, Hiyoshidainanabanchou 25; Takatsuki-shi, Osaka, 569-1022; (JP)
- **Nakahara, Tohru**
  1-4-40, Nonakaminami, Yadogawa-ku; Osaka-shi, Osaka, 532-0022; (JP)
- **Murakami, Hiroki**
  2-8-5, Tsukumodai; Suita-shi, Osaka, 565-0862; (JP)

Legal Representative:

- **Balsters, Robert et al (83703)**
  Novagraaf International S.A. 25, avenue du Pailly; 1220 Les Avanchets - Geneva; (CH)

	Country	Number	Kind	Date	
Patent	EP	1235174	A2	20020828	(Basic)
	EP	1235174	A3	20040121	
Application	EP	2002003117		20020213	
Priorities	JP	200136523		20010214	

Designated States:
DE; FR; GB;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): G06F-017/60; G06F-001/00; H04N-007/24**Abstract Word Count:** 139
NOTE: 2
NOTE: Figure number on first page: 2

Legal Status Type	Pub. Date	Kind	Text

Language Publication: English
Procedural: English
Application: English

Fulltext Availability	Available Text	Language	Update	Word Count
CLAIMS A		(English)	200235	3283
SPEC A		(English)	200235	9489
Total Word Count (Document A) 12772				
Total Word Count (Document B) 0				
Total Word Count (All Documents) 12772				

Dialog eLink: Order File History
8/3/4 (Item 2 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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01311422

DATA DISTRIBUTION SYSTEM AND RECORDER FOR USE THEREIN
DATENVERTEILUNGSVORRICHTUNG UND ZUGEHORIGES AUFZEICHNUNGSGERAT
SYSTEME DE DISTRIBUTION DE DONNEES ET ENREGISTREUR UTILISE AVEC CE SYSTEME

Patent Assignee:

- **Sanyo Electric Co., Ltd.**; (2206455)
  5-5, Keihan-Hondori 2-chome,; Moriguchi-shi, Osaka 570-8677; (JP)
  (Applicant designated States: all)
- **PFU LIMITED**; (930123)
  Nu-98-2, Aza-Unoke, Unoke-machi; Kahoku-gun Ishikawa 929-1125; (JP)
  (Applicant designated States: all)
- **FUJITSU LIMITED**; (211463)
  1-1, Kamikodanaka 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)
  (Applicant designated States: all)
- **Hitachi, Ltd.**; (204145)
  6 Kanda Surugadai 4-chome; Chiyoda-ku, Tokyo 101-8010; (JP)
  (Applicant designated States: all)
- **Nippon Columbia Co., Ltd.**; (2395621)
  14-14 Akasaka 4-chome, Minato-ku; Tokyo 107-8011; (JP)
  (Applicant designated States: all)

Inventor:

- **HORI, Yoshihiro, Sanyo Electric Co., Ltd.**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **HIOKI, Toshiaki, Sanyo Electric Co., Ltd.**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **KANAMORI, Miwa, Sanyo Electric Co., Ltd.**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **TAKAHASHI, Masataka, PFU Limited**
  Aza Unoke Nu98-2, Unoke-machi; Kahoku-gun, Ishikawa 929-1192; (JP)
- **HASEBE, Takayuki, Fujitsu Limited**
  1-1, Kamikodanaka 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)
- **YOSHIOKA, Makoto, Fujitsu Limited**
  1-1, Kamikodanak 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)
- **HATAKEYAMA, Takahisa, Fujitsu Limited**
  1-1, Kamikodanaka 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)
- **TONEGAWA, Tadaaki, Semicond. & Integr. Circuits**
  Hitachi, Ltd., 20-1, Josuihoncho 5-chome; Kodaira-shi, Tokyo 187-8588; (JP)

- **ANAZAWA, Takeaki, Nippon Columbia Co., Ltd.**
  14-14,Akasaka 4-chome, Minato-ku; Tokyo 107-8011; (JP)

Legal Representative:

- **Glawe. Delfs. Moll (100699)**
  Patentanwalte Postfach 26 01 62; 80058 Munchen; (DE)

	Country	Number	Kind	Date	
Patent	EP	1237326	A1	20020904	(Basic)
	WO	2001043342		20010614	
Application	EP	2000979088		20001205	
	WO	2000JP8593		20001205	
Priorities	JP	99346861		19991206	

Designated States:
DE; FR; GB;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): H04L-009/32; G06F-012/14; G10K-015/02; G06F-013/00**Abstract Word Count:** 86
NOTE: 0006
NOTE: Figure number on first page: 0006

Legal Status Type	Pub. Date	Kind	Text

Language Publication: English
Procedural: English
Application: Japanese

Fulltext Availability	Available Text	Language	Update	Word Count
CLAIMS A		(English)	200236	4572
SPEC A		(English)	200236	13725
Total Word Count (Document A) 18297				
Total Word Count (Document B) 0				
Total Word Count (All Documents) 18297				

Dialog eLink: Order File History
8/3/5 (Item 3 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS

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01308783

DATA DISTRIBUTION SYSTEM AND RECORDER FOR USE THEREIN

DATENVERTEILUNGSVORRICHTUNG UND ZUGEHORIGES AUFZEICHNUNGSGERAT

SYSTEME DE DISTRIBUTION DE DONNEES ET ENREGISTREUR A UTILISER DANS CE SYSTEME

Patent Assignee:

- **Sanyo Electric Co., Ltd.**; (2206455)
  5-5, Keihan-Hondori 2-chome,; Moriguchi-shi, Osaka 570-8677; (JP)
  (Applicant designated States: all)
- **PFU LIMITED**; (930123)
  Nu-98-2, Aza-Unoke, Unoke-machi; Kahoku-gun Ishikawa 929-1125; (JP)
  (Applicant designated States: all)
- **FUJITSU LIMITED**; (211463)
  1-1, Kamikodanaka 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)
  (Applicant designated States: all)
- **Hitachi, Ltd.**; (204145)
  6 Kanda Surugadai 4-chome; Chiyoda-ku, Tokyo 101-8010; (JP)
  (Applicant designated States: all)
- **Nippon Columbia Co., Ltd.**; (2395621)
  14-14 Akasaka 4-chome, Minato-ku; Tokyo 107-8011; (JP)
  (Applicant designated States: all)

Inventor:

- **HORI, Yoshihiro Sanyo Electric Co., Ltd**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **HIOKI, Toshiaki Sanyo Electric Co., Ltd**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **KANAMORI, Miwa Sanyo Electric Co., Ltd**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **YOSHIKAWA, Takatoshi Sanyo Electric Co., Ltd**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **TAKEMURA, Hiroshi Sanyo Electric Co., Ltd**
  5-5, Keihanhondori 2-chome; Moriguchi-shi, Osaka 570-8677; (JP)
- **TAKAHASHI, Masataka PFU Limited**
  Nu98-2, Aza Unoke, Unoke-machi; Kahoku-gun, Ishikawa 929-1192; (JP)
- **HASEBE, Takayuki Fujitsu Limited**
  1-1, Kamikodanaka 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)

- **FURUTA, Shigeki Fujitsu Limited**
  1-1, Kamikodanaka 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)
- **HATAKEYAMA, Takahisa Fujitsu Limited**
  1-1, Kamikodanaka 4-chome, Nakahara-ku; Kawasaki-shi, Kanagawa 211-8588; (JP)
- **TONEGAWA, Tadaaki Semiconductor & Integr. Circuits**
  Hitachi, Ltd 20-1, Josuihoncho 5-chome; Kodaira-shi, Tokyo 187-8588; (JP)
- **ANAZAWA, Takeaki Nippon Columbia Co., Ltd**
  14-14, Akasaka 4-chome; Minato-ku, Tokyo 107-8011; (JP)

Legal Representative:

- **Glawe. Delfs. Moll (100699)**
  Patentanwalte Postfach 26 01 62; 80058 Munchen; (DE)

	Country	Number	Kind	Date	
Patent	EP	1237325	A1	20020904	(Basic)
	WO	2001041359		20010607	
Application	EP	2000978048		20001201	
	WO	2000JP8497		20001201	
Priorities	JP	99345244		19991203	

Designated States:
DE; FR; GB;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): H04L-009/32; G06F-012/14; G10K-015/02; G06F-013/00**Abstract Word Count:** 105
NOTE: 0005
NOTE: Figure number on first page: 0005

Legal Status Type	Pub. Date	Kind	Text

Language Publication: English
Procedural: English
Application: Japanese

Fulltext Availability	Available Text	Language	Update	Word Count
CLAIMS A		(English)	200236	5603
SPEC A		(English)	200236	14095
Total Word Count (Document A) 19698				

Fulltext Availability	Available Text	Language	Update	Word Count
Total Word Count (Document B) 0				
Total Word Count (All Documents) 19698				

Dialog eLink: Order File History
8/3/6 (Item 4 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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01289339

Digital content distribution using web broadcasting services
Verbreitung digitalen Inhalts unter Benutzung eines Internet-Sendeservices
Distribution de contenu numerique utilisant un service de diffusion de donnees

Patent Assignee:

- **International Business Machines Corporation**; (200128)
  New Orchard Road; Armonk, NY 10504; (US)
  (Applicant designated States: all)

Inventor:

- **Mourad, Magda, c/o IBM United Kingdom Ltd.**
  Intellectual Property Law, Hursley Park; Winchester, Hampshire SO21 2JN; (GB)
- **Munson, Jonathan P., c/o IBM United Kingdom Ltd.**
  Intellectual Property Law, Hursley Park; Winchester, Hampshire SO21 2JN; (GB)
- **Pacifici, Giovanni, c/o IBM United Kingdom Ltd.**
  Intellectual Property Law, Hursley Park; Winchester, Hampshire SO21 2JN; (GB)
- **Tantawy, Ahmed, c/o IBM United Kingdom Ltd.**
  Intellectual Property Law, Hursley Park; Winchester, Hampshire SO21 2JN; (GB)
- **Youssef, Alaa S., c/o IBM United Kingdom Ltd.**
  Intellectual Property Law, Hursley Park; Winchester, Hampshire SO21 2JN; (GB)

Legal Representative:

- **Ling, Christopher John (80401)**
  IBM United Kingdom Limited, Intellectual Property Department, Hursley Park; Winchester, Hampshire SO21 2JN; (GB)

	Country	Number	Kind	Date	
Patent	EP	1107137	A2	20010613	(Basic)

	Country	Number	Kind	Date
	EP	1107137	A3	20040428
Application	EP	2000310981		20001208
Priorities	US	457563		19991209
	US	487417		20000120

Designated States:
AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LI; LU; MC; NL; PT; SE; TR;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): G06F-017/30**Abstract Word Count:** 151
NOTE: 18
NOTE: Figure number on first page: 18

Legal Status Type	Pub. Date	Kind	Text

Language Publication: English
Procedural: English
Application: English

Fulltext Availability	Available Text	Language	Update	Word Count
CLAIMS A		(English)	200124	1260
SPEC A		(English)	200124	46736
Total Word Count (Document A) 47996				
Total Word Count (Document B) 0				
Total Word Count (All Documents) 47996				

Dialog eLink: Order File History
8/3/7 (Item 5 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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01257209

Method and apparatus for uniquely identifying a customer purchase in an electronic distribution system
Verfahren und Apparat zum eindeutigen Identifizieren eines Kundeneinkaufs in einem elektronischen Auslieferungs-System

Methode et appareil pour l'identification unique d'un achat d'un client dans un systeme de distribution electronique

Patent Assignee:

- **Wistron Corporation**; (7754890)
  21 F, No. 88, Sec. 1 Hsin-Tai-Wu Road Hsi-Chih City; Taipei Hsien 221; (TW)
  (Proprietor designated states: all)

Inventor:

- **Dorak, John J., Jr.,c/o IBM United Kingdom Ltd**
  Intel. Property Law,Hursley Park; Winchester,Hampshire S021 2JN; (GB)

Legal Representative:

- **Schaeberle, Steffen et al (93211)**
  Hoefer & Partner Patentanwalte Pilgersheimer Strasse 20; 81543 Munchen; (DE)

	Country	Number	Kind	Date	
Patent	EP	1085443	A2	20010321	(Basic)
	EP	1085443	A3	20050105	
	EP	1085443	B1	20080827	
Application	EP	2000308024		20000914	
Priorities	US	397419		19990917	

Designated States:
AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LI; LU; MC; NL; PT; SE;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): G06F-017/60

International Classification (Version 8) IPC	Level	Value	Position	Status	Version	Action	Source	Office
G06F-0021/00	A	I	F	B	20060101	20080226	H	EP

Abstract Word Count: 123
NOTE: 18
NOTE: Figure number on first page: 18

Legal Status Type	Pub. Date	Kind	Text

Language Publication: English
Procedural: English
Application: English

Fulltext Availability Available Text	Language	Update	Word Count
CLAIMS A	(English)	200112	694
SPEC A	(English)	200112	42226
CLAIMS B	(English)	200835	1047
CLAIMS B	(German)	200835	1107
CLAIMS B	(French)	200835	1243
SPEC B	(English)	200835	43289
Total Word Count (Document A) 42927			
Total Word Count (Document B) 46686			
Total Word Count (All Documents) 89613			

Dialog eLink: Order File History
8/3/8 (Item 6 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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01245941

Secure electronic content distribution on CDS and DVDS
Sichere Verteilung von elektronischem Inhalt auf CDs und DVDs
Distribution securisee d'un contenu electronique sur CDs et DVDs

Patent Assignee:

- **International Business Machines Corporation**; (200129)
  New Orchard Road; Armonk, NY 10504; (US)
  (Proprietor designated states: all)

Inventor:

- **Hurtado, Marco M.,c/o IBM United Kingdom Ltd**
  Intellectual Property Law,Hursley Park; Winchester,Hampshire SO21 2JN; (GB)
- **Milsted, Kenneth L.,c/o IBM United Kingdom Ltd**
  Intellectual Property Law,Hursley Park; Winchester,Hampshire SO21 2JN; (GB)
- **Gruse, George G.,c/o IBM United Kingdom Ltd**
  Intellectual Property Law,Hursley Park; Winchester,Hampshire SO21 2JN; (GB)

- **Downs, Edgar,c/o IBM United Kingdom Ltd**
  Intellectual Property Law,Hursley Park; Winchester,Hampshire SO21 2JN; (GB)
- **Lehman, Christopher T.,c/o IBM United Kingdom Ltd**
  Intellectual Property Law,Hursley Park; Winchester,Hampshire SO21 2JN; (GB)
- **Spagna, Richard L.,c/o IBM United Kingdom Ltd**
  Intellectual Property Law,Hursley Park; Winchester,Hampshire SO21 2JN; (GB)
- **Lotspiech, Jeffrey B.,c/o IBM United Kingdom Ltd**
  Intellectual Property Law,Hursley Park; Winchester,Hampshire SO21 2JN; (GB)

Legal Representative:

- **Ling, Christopher John (80401)**
  IBM United Kingdom Limited, Intellectual Property Department, Hursley Park; Winchester,Hampshire SO21 2JN; (GB)

	Country	Number	Kind	Date	
Patent	EP	1077398	A1	20010221	(Basic)
	EP	1077398	B1	20060920	
Application	EP	2000305655		20000705	
Priorities	US	376102		19990817	

Designated States:
AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LI; LU; MC; NL; PT; SE;

Extended Designated States:
AL; LT; LV; MK; RO; SI;

International Patent Class (V7): G06F-001/00; H04L-029/06

International Classification (Version 8) IPC	Level	Value	Position	Status	Version	Action	Source	Office
G06F-0001/00	A	I	F	B	20060101	20001128	H	EP
H04L-0029/06	A	I	L	B	20060101	20001128	H	EP

Abstract Word Count: 211
NOTE: 18
NOTE: Figure number on first page: 18

Legal Status Type	Pub. Date	Kind	Text

Language Publication: English
Procedural: English
Application: English

Fulltext Availability	Available Text	Language	Update	Word Count

Fulltext Availability Available Text	Language	Update	Word Count
CLAIMS A	(English)	200108	981
SPEC A	(English)	200108	42868
CLAIMS B	(English)	200638	520
CLAIMS B	(German)	200638	534
CLAIMS B	(French)	200638	601
SPEC B	(English)	200638	42370
Total Word Count (Document A) 43856			
Total Word Count (Document B) 44025			
Total Word Count (All Documents) 87881			

Dialog eLink: Order File History
8/3/9 (Item 7 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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00803285

SYSTEMS AND METHODS FOR SECURE TRANSACTION MANAGEMENT AND ELECTRONIC RIGHTS PROTECTION

SYSTEME UND VERFAHREN FUR EIN SICHERES UBERTRAGUNGSMANAGEMENT UND ELEKTRONISCHERRECHTSSCHUTZ

SYSTEMES ET PROCEDES DE GESTION SECURISEE DE TRANSACTIONS ET DE PROTECTION ELECTRONIQUE DES DROITS

Patent Assignee:

- **Intertrust Technologies Corp**; (7745470)
  955 Stewart Drive; Sunnyvale CA 94085-3913; (US)
  (Proprietor designated states: all)

Inventor:

- **GINTER, Karl, L.**
  10404 43rd Avenue; Beltsville, MD 20705; (US)
- **SHEAR, Victor, H.**
  5203 Battery Lane; Bethesda, MD 20814; (US)
- **SPAHN, Francis, J.**
  2410 Edwards Avenue; El Cerrito, CA 94530; (US)
- **VAN WIE, David, M.**
  P.O. Box 5610; Eugene, OR 97405; (US)

Legal Representative:

- **Williams, Michael Ian et al (92852)**
  Fj Cleveland 40-43 Chancery Lane; London WC2A 1JQ; (GB)

	Country	Number	Kind	Date	
Patent	EP	861461	A2	19980902	(Basic)
	EP	861461	B1	20081029	
	WO	1996027155		19960906	
Application	EP	96922371		19960213	
	WO	96US2303		19960213	
Priorities	US	388107		19950213	

Designated States:
AT; BE; CH; DE; DK; ES; FR; GB; GR; IE;
IT; LI; LU; MC; NL; PT; SE;

Related Divisions: Patent (Application):EP 1431864 (EP 2004075701)

International Patent Class (V7): G06F-001/00; G06F-017/60;

International Classification (Version 8) IPC	Level	Value	Position	Status	Version	Action	Source	Office
G06F-0021/00	A	I	F	B	20060101	20080416	H	EP
G06Q-0010/00	A	I	L	B	20060101	20080416	H	EP

NOTE: No A-document published by EPO

Legal Status Type	Pub. Date	Kind	Text

Language Publication: English
Procedural: English
Application: English

Fulltext Availability Available Text	Language	Update	Word Count
CLAIMS B	(English)	200844	1509
CLAIMS B	(German)	200844	1588
CLAIMS B	(French)	200844	1692
SPEC B	(English)	200844	80774
Total Word Count (Document A) 0			
Total Word Count (Document B) 85563			
Total Word Count (All Documents) 85563			

Dialog eLink: Order File History
8/3/10 (Item 1 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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00806384

NETWORK AND LIFE CYCLE ASSET MANAGEMENT IN AN E-COMMERCE ENVIRONMENT AND METHOD THEREOF

GESTION D'ACTIFS DURANT LE CYCLE DE VIE ET EN RESEAU DANS UN ENVIRONNEMENT DE COMMERCE ELECTRONIQUE ET PROCEDE ASSOCIE

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 1661 Page Mill Road, Palo Alto, CA 94304 US; US(Residence); US(Nationality)

Legal Representative:

- **HICKMAN Paul L(agent)**
  Oppenheimer Wolff & Donnelly, LLP, 38th Floor, 2029 Century Park East, Los Angeles, CA 90067-3024; US;

	Country	Number	Kind	Date
Patent	WO	200139030	A2	**20010531**
Application	WO	2000US32324		20001122
Priorities	US	99444775		19991122
	US	99447621		19991122

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

Language Publication Language: English
Filing Language: English
Fulltext word count: 171499

Dialog eLink: Order File History
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DIALOG(R)File 349: PCT FULLTEXT
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00806383

COLLABORATIVE CAPACITY PLANNING AND REVERSE INVENTORY MANAGEMENT DURING DEMAND AND SUPPLY PLANNING IN A NETWORK-BASED SUPPLY CHAIN ENVIRONMENT AND METHOD THEREOF

PLANIFICATION EN COLLABORATION DES CAPACITES ET GESTION ANTICIPEE DES STOCKS LORS DE LA PLANIFICATION DE L'OFFRE ET DE LA DEMANDE DANS UN ENVIRONNEMENT DE CHAINE D'APPROVISIONNEMENT FONDEE SUR LE RESEAU ET PROCEDE ASSOCIE

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 1661 Page Mill Road, Palo Alto, CA 94304 US; US(Residence); US(Nationality)

Legal Representative:

- **HICKMAN Paul L(agent)** Oppenheimer Wolff & Donnelly, LLP, 1400 Page Mill Road, Palo Alto, CA 94304; US;

	Country	Number	Kind	Date
Patent	WO	200139029	A2	**20010531**
Application	WO	2000US32309		20001122
Priorities	US	99444655		19991122
	US	99444886		19991122

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

Language Publication Language: English
Filing Language: English
Fulltext word count: 157840

Dialog eLink: Order File History
8/3/12 (Item 3 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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00806382

METHOD FOR AFFORDING A MARKET SPACE INTERFACE BETWEEN A PLURALITY OF MANUFACTURERS AND SERVICE PROVIDERS AND INSTALLATION MANAGEMENT VIA A MARKET SPACE INTERFACE

PROCEDE DE MISE A DISPOSITION D'UNE INTERFACE D'ESPACE DE MARCHE ENTRE UNE PLURALITE DE FABRICANTS ET DES FOURNISSEURS DE SERVICES ET GESTION D'UNE INSTALLATION VIA UNE INTERFACE D'ESPACE DE MARCHE

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 1661 Page Mill Road, Palo Alto, CA 94304 US; US(Residence); US(Nationality)

Legal Representative:

- **HICKMAN Paul L(et al)(agent)**
  Oppenheimer Wolff & Donnelly LLP, 1400 Page Mill Road, Palo Alto, CA 94304; US;

	Country	Number	Kind	Date
Patent	WO	200139028	A2	**20010531**
Application	WO	2000US32308		20001122
Priorities	US	99444773		19991122

	Country	Number	Kind	Date
	US	99444798		19991122

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE; TR;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

Language Publication Language: English
Filing Language: English
Fulltext word count: 170977

Dialog eLink: Order File History
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DIALOG(R)File 349: PCT FULLTEXT
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00784126

SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR AN EXCEPTION RESPONSE TABLE IN ENVIRONMENT SERVICES PATTERNS
SYSTEME, PROCEDE ET ARTICLE DE PRODUCTION DESTINES A UNE TABLE DE REPONSE D'EXCEPTION DANS DES CONFIGURATIONS DE SERVICES D'ENVIRONNEMENT

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 1661 Page Mill Road, Palo Alto, CA 94304 US; US(Residence); US(Nationality)

Legal Representative:

- **HICKMAN Paul L(et al)(agent)**
  Oppenheimer Wolff & Donnelly LLP, 38th Floor, 2029 century Park East, Los Angeles, CA 90067-3024; US;

	Country	Number	Kind	Date
Patent	WO	200116706	A2-A3	**20010308**
Application	WO	2000US24086		20000831
Priorities	US	99387873		19990831

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

Language Publication Language: English
Filing Language: English
Fulltext word count: 150318

Dialog eLink: Order File History
8/3/14 (Item 5 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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00761432

METHODS, CONCEPTS AND TECHNOLOGY FOR DYNAMIC COMPARISON OF PRODUCT FEATURES AND CUSTOMER PROFILE
PROCEDES, CONCEPTS ET TECHNIQUE DE COMPARAISON DYNAMIQUE DE CARACTERISTIQUES D'UN PRODUIT ET DU PROFIL DES CONSOMMATEURS

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 100 South Wacker Drive, Chicago, IL 60606 US; US (Residence); US (Nationality) (Designated for all)

Legal Representative:

- **BRUESS Steven C(agent)**
  Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073958	A2	**20001207**
Application	WO	2000US14459		20000524
Priorities	US	99320818		19990527

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)
AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG;
BR; BY; CA; CH; CN; CR; CU; CZ; DE; DK;
DM; DZ; EE; ES; FI; GB; GD; GE; GH; GM;
HR; HU; ID; IL; IN; IS; JP; KE; KG; KP;
KR; KZ; LC; LK; LR; LS; LT; LU; LV; MA;
MD; MG; MK; MN; MW; MX; MZ; NO; NZ; PL;
PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ;
TM; TR; TT; TZ; UA; UG; UZ; VN; YU; ZA;
ZW;

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML;
MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ;
UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;
Language Publication Language: English
Filing Language: English
Fulltext word count: 151011

Dialog eLink: Order File History
8/3/15 (Item 6 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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00761431

A SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR PROVIDING COMMERCE-RELATED WEB APPLICATION SERVICES
SYSTEME, PROCEDE ET ARTICLE MANUFACTURE DESTINES A LA FOURNITURE DE SERVICES D'APPLICATION DANS LE WEB LIES AU COMMERCE

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 100 South Wacker Drive, Chicago, IL 60606 US; US(Residence); US(Nationality)

Legal Representative:

- **BRUESS Steven C(agent)**
  Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073957	A2-A3	20001207
Application	WO	2000US14420		20000525
Priorities	US	99321492		19990527

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)

[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE;

[OA] BF; BJ; CF; CG; CI; CM; GA; GN; GW; ML; MR; NE; SN; TD; TG;

[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

[EA] AM; AZ; BY; KG; KZ; MD; RU; TJ; TM;

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00761430

SYSTEM, METHOD AND COMPUTER PROGRAM FOR REPRESENTING PRIORITY INFORMATION CONCERNING COMPONENTS OF A SYSTEM
SYSTEME, METHODE ET ARTICLE FABRIQUE PERMETTANT DE CLASSER PAR ORDRE DE PRIORITE DES COMPOSANTS D'UNE STRUCTURE DE RESEAU NECESSAIRES A LA MISE EN OEUVRE D'UNE TECHNIQUE

Patent Applicant/Patent Assignee:

- **ANDERSEN CONSULTING LLP**; 100 South Wacker Drive, Chicago, IL 60606
  US; US(Residence); US(Nationality)

Legal Representative:

- **BRUESS Steven C(agent)**
  Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073956	A2-A3	**20001207**
Application	WO	2000US14406		20000524
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00761429

METHODS, CONCEPTS AND TECHNOLOGY FOR A VIRTUAL SHOPPING SYSTEM CAPABLE OF ASSESSING NEEDS OF A CUSTOMER AND RECOMMENDING A PRODUCT OR SERVICE BASED ON SUCH ASSESSED NEEDS

PROCEDES, CONCEPTS ET TECHNOLOGIE POUR SYSTEME D'ACHAT VIRTUEL CAPABLE D'EVALUER LES BESOINS D'UN CLIENT ET DE RECOMMANDER UN PRODUIT OU UN SERVICE SUR LA BASE DE CES BESOINS

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 100 South Wacker Drive, Chicago, IL 60606 US; US(Residence); US(Nationality)

Legal Representative:

- **BRUESS Steven C(agent)**
  Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

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Patent	WO	200073955	A2	**20001207**
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00761424

A SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR PHASE DELIVERY OF COMPONENTS OF A SYSTEM REQUIRED FOR IMPLEMENTATION OF TECHNOLOGY

SYSTEME, PROCEDE ET ARTICLE MANUFACTURE DESTINES A LA FOURNITURE PAR PHASES DE COMPOSANTS D'UN SYSTEME NECESSAIRES A L'APPLICATION D'UNE TECHNIQUE

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 100 South Wacker Drive, Chicago, IL 60606 US; US(Residence); US(Nationality)

Legal Representative:

- **BRUESS Steven C(agent)**
  Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

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Patent	WO	200073930	A2	**20001207**
Application	WO	2000US14458		20000524
Priorities	US	99321360		19990527

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UG; ZW;

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00761423

A SYSTEM, METHOD, AND ARTICLE OF MANUFACTURE FOR EFFECTIVELY CONVEYING WHICH COMPONENTS OF A SYSTEM ARE REQUIRED FOR IMPLEMENTATION OF TECHNOLOGY

SYSTEME, PROCEDE ET ARTICLE MANUFACTURE POUR L'ACHEMINEMENT EFFICACE DES COMPOSANTS D'UN SYSTEME NECESSAIRES A LA MISE EN PRATIQUE D'UNE TECHNOLOGIE

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 100 South Wacker Drive, Chicago, IL 60606 US; US(Residence); US(Nationality)

Legal Representative:

- **BRUESS Steven C(agent)**
Merchant & Gould P.C., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073929	A2	20001207
Application	WO	2000US14457		20000524
Priorities	US	99321136		19990527

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[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
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[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

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00761422

BUSINESS ALLIANCE IDENTIFICATION
SYSTEME, PROCEDE ET ARTICLE DE PRODUCTION POUR L'IDENTIFICATION D'ALLIANCES COMMERCIALES DANS UN CADRE D'ARCHITECTURE RESEAU

Patent Applicant/Patent Assignee:

- **ACCENTURE LLP**; 100 South Wacker Drive, Chicago, IL 60606 US; US(Residence); US(Nationality)

Legal Representative:

- **BRUESS Steven C(agent)**
  Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A., P.O. Box 2903, Minneapolis, MN 55402-0903; US;

	Country	Number	Kind	Date
Patent	WO	200073928	A2-A3	**20001207**
Application	WO	2000US14375		20000524
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[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

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00757135

METHODS AND SYSTEMS EMPLOYING DIGITAL WATERMARKING IN MUSIC AND OTHER MEDIA

PROCEDES ET SYSTEMES UTILISANT LE FILIGRANE NUMERIQUE DANS DES SUPPORTS MUSICAUX ET AUTRES

Patent Applicant/Patent Assignee:

- **DIGIMARC CORPORATION**; 19801 S.W. 72nd Avenue, Suite 250, Tualatin, OR 97062
  US; US(Residence); US(Nationality)
  (For all designated states except: US)
- **RHOADS Geoffrey B**; 304 S.W. Tualatin Loop, West Linn, OR 97068
  US; US(Residence); US(Nationality)
  (Designated only for: US)
- **DAVIS Bruce L**; 15599 Village Drive, Lake Oswego, OR 97034
  US; US(Residence); US(Nationality)
  (Designated only for: US)
- **CARR J Scott**; 7814 S.W. 189th Avenue, Beaverton, OR 97007
  US; US(Residence); US(Nationality)
  (Designated only for: US)

Patent Applicant/Inventor:

- **RHOADS Geoffrey B**
  304 S.W. Tualatin Loop, West Linn, OR 97068; US; US(Residence); US(Nationality); (Designated only for: US)
- **DAVIS Bruce L**
  15599 Village Drive, Lake Oswego, OR 97034; US; US(Residence); US(Nationality); (Designated only for: US)
- **CARR J Scott**
  7814 S.W. 189th Avenue, Beaverton, OR 97007; US; US(Residence); US(Nationality); (Designated only for: US)

Legal Representative:

- **MEYER Joel R(agent)**
  Digimarc Corporation, 19801 S.W. 72nd Avenue, Suite 250, Tualatin, OR 97062; US;

	Country	Number	Kind	Date
Patent	WO	200070523	A1	**20001123**
Application	WO	2000US13798		20000518
Priorities	US	99134782		19990519
	US	99337590		19990621

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[EP] AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE;

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[AP] GH; GM; KE; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZW;

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Language Publication Language: English
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Fulltext word count: 21851

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00545536

SYSTEM FOR TRACKING END-USER ELECTRONIC CONTENT USAGE
SYSTEME POUR SUIVRE L'UTILISATION DE CONTENUS ELECTRONIQUES PAR UN UTILISATEUR FINAL

Patent Applicant/Patent Assignee:

- **INTERNATIONAL BUSINESS MACHINES CORPORATION**;
  ; ;
- **DORAK John Jr**;
  ; ;
- **DOWNS Edgar**;
  ; ;
- **GRUSE George Gregory**;
  ; ;
- **HURTADO Marco**;
  ; ;
- **LEHMAN Christopher**;
  ; ;
- **LOTSPIECH Jeffrey**;
  ; ;
- **MEDINA Cesar**;
  ; ;
- **MILSTED Kenneth**;
  ; ;

	Country	Number	Kind	Date
Patent	WO	200008909	A2	**20000224**
Application	WO	99US18383		19990812
Priorities	US	98133519		19980813
	US	98177096		19981022

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Language Publication Language: English

Filing Language:

Fulltext word count: 51208

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00419920

TRUSTED INFRASTRUCTURE SUPPORT SYSTEMS, METHODS AND TECHNIQUES FOR SECURE ELECTRONIC COMMERCE, ELECTRONIC TRANSACTIONS, COMMERCE PROCESS CONTROL AND AUTOMATION, DISTRIBUTED COMPUTING, AND RIGHTS MANAGEMENT
SYSTEME D'ASSISTANCE INFRASTRUCTURELLE ADMINISTRATIVE, PROCEDES ET TECHNIQUES SURES CONCERNANT LE COMMERCE ET LES TRANSACTIONS ELECTRONIQUES, COMMANDE ET AUTOMATISATION DES PROCESSUS COMMERCIAUX, CALCUL REPARTI ET GESTION DES REDEVANCES

Patent Applicant/Patent Assignee:

- **INTERTRUST TECHNOLOGIES CORP**;
  ; ;
- **SHEAR Victor H**;
  ; ;
- **VAN WIE David M**;
  ; ;
- **WEBER Robert**;
  ; ;

	Country	Number	Kind	Date
Patent	WO	9810381	A1	**19980312**
Application	WO	96US14262		19960904
Priorities	WO	96US14262		19960904

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Language Publication Language: English
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00418748

SYSTEMS AND METHODS FOR SECURE TRANSACTION MANAGEMENT AND ELECTRONIC RIGHTS PROTECTION
SYSTEMES ET PROCEDES DE GESTION DE TRANSACTIONS SECURISEES ET DE PROTECTION DE DROITS ELECTRONIQUES

Patent Applicant/Patent Assignee:

- **INTERTRUST TECHNOLOGIES CORP**;
  ; ;

	Country	Number	Kind	Date
Patent	WO	9809209	A1	19980305
Application	WO	97US15243		19970829
Priorities	US	96706206		19960830

Designated States: (All protection types applied unless otherwise stated - for applications 2004+)
Language Publication Language: English
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00344642

SYSTEMS AND METHODS FOR SECURE TRANSACTION MANAGEMENT AND ELECTRONIC RIGHTS PROTECTION
SYSTEMES ET PROCEDES DE GESTION SECURISEE DE TRANSACTIONS ET DE PROTECTION ELECTRONIQUE DES DROITS

Patent Applicant/Patent Assignee:

- **ELECTRONIC PUBLISHING RESOURCES INC**;
  ; ;

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Patent	WO	9627155	A2	**19960906**
Application	WO	96US2303		19960213
Priorities	US	95388107		19950213

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Language Publication Language: English

Filing Language:

Fulltext word count: 207972

? **ds**

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Set     Items   Description
S1  102245930   PD<20020213
S2     210207   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
DISTR-
             IBUTING OR DISTRIBUTION)(4N)(CONTENT OR CONTENTS OR MUSIC
OR -
             MUSICAL OR SONG OR SONGS OR MEDIA OR MULTIMEDIA))
S3       1824   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
DISTR-
             IBUTING OR DISTRIBUTION)(4N)((DIGITAL OR
ELECTRONIC)(2N)(WORK
             OR WORKS OR BOOK OR BOOKS)))
S4      10080   (S2 OR S3) AND ((RIGHTS OR LICENSE OR LICENSING OR
LICENSED
              OR LICENSES OR LICENSED)(5N)(MANAGE OR MANAGES OR MANAGED
OR
             MANAGING OR MANAGEMENT))
S5        382   S4 AND ((UPDATE OR UPDATES OR UPDATING OR UPDATED OR
CHANGE
              OR CHANGES OR CHANGED OR CHANGING)(5N)(RIGHTS OR
COPYRIGHT OR
              COPYRIGHTS OR LICENSE OR LICENSING OR LICENSED OR
LICENSES OR
              LICENSED))
S6         81   S5 AND ((PRIMARY OR MAIN OR FIRST OR INITIAL OR
INITIALLY)-
             (3N)(CIRCULATE OR CIRCULATES OR CIRCULATED OR CIRCULATING
OR -
             CIRCULATION OR DISTRIBUTION OR DISTRIBUTE OR DISTRIBUTED
OR D-
             ISTRIBUTES OR DISTRIBUTING))
S7         29   S5 AND ((SECONDARY OR ADDITIONAL OR UNCIRCULATED OR
UNPURC-
             HASED OR (NON(W)(CIRCULATED OR PURCHASED)))(5N)(CIRCULATE
OR -
```

```
              CIRCULATES OR CIRCULATED OR CIRCULATING OR CIRCULATION OR
DIS-
              TRIBUTION OR DISTRIBUTE OR DISTRIBUTED OR DISTRIBUTES OR
DIST-
              RIBUTING)(5N)(CONTENT OR CONTENTS OR MUSIC OR MUSICAL OR
SONG
              OR SONGS OR WORK OR WORKS OR CONTENTS))
S8          25   RD  (unique items)
```

? **s s6 and s7**

```
               81  S6
               29  S7
      S9       23  S6 AND S7
```

? **rd**

```
>>>Duplicate detection is not supported for File 347.

>>>Duplicate detection is not supported for File 348.

>>>Duplicate detection is not supported for File 349.

>>>Records from unsupported files will be retained in the RD set.
     S10       23  RD  (unique items)
```

? **t s10/k/all**

10/K/1 (Item 1 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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Country	Number	Kind	Date

Legal Status Type	Pub. Date	Kind	Text

Language

Fulltext Availability	Available Text	Language	Update	Word Count
Total Word Count (Document A)				
Total Word Count (Document B)				
Total Word Count (All Documents)				

Specification: ...a primary circulation of a content. Processing concerning a primary circulation of a content is performed as follows. The content distributing device A 11 receives **distribution** of a **content** from the content providing device 1 via the content exchanging device 15. Then, the **content distribution** management device 17 manages purchase, usage and so on of the **content** in the **content distributing** device A 11.

A **primary circulation** of a content performed by the system 10 will be explained below with reference to Fig. 4, Fig. 5 and Figs. 6A (equivalent to) 6C... ...5 is a diagram showing a detailed example of information which is communicated between each device (the content exchanging device 15 is omitted) with the **content distribution** management device 17 as a center in connection with a **primary circulation** of a content.

Also, a management information table 400 in Fig. 6A, which is a table in use for managing copyrights and payments per content, is stored in a memory unit 179 of the **content distribution** management device 17. In the management information table 400, information such as a name of a content (or an ID of a content) subject to... ...Internet such as "www.xxx.co.jp/con(underscore)server/" is actually registered (same as above hereinafter).

Note that, in addition to the above information, **content**-related information concerning **content distribution** such as a license of copy control, a **content distribution** time estimated based on a content size (depending upon a compression ratio) and a network band (it is possible, in this case, to shorten a time required for **distribution** of a **content** even via a network with a same band if a smaller size of a content is selected), quality of a content (it is possible, in... ...Further, Figs. 6B and 6C show how the details of the management information table 400 change in accordance with the purchase and usage of a **content** by the **content distributing** device A 11.

(1) The content providing device 1 sends a rule registration request to the **content distribution** management device 17 via the network 19 in order to register usage rules of a content which is distributable to a **content distributing** device (Step S401). At this time, the content providing device 1 sends key information, usage rules, payment information, etc. per content name, as shown in... ...400 in Fig. 6A, for example. This corresponds to the processing of a 401, 403 rule registration request (Step S501) in Fig. 5.

(2) The **content distribution** management device 17 checks details of the rule registration request received from the content providing device 1. As a result of the check, when the **content distribution** management device 17 decides that the rule registration request is unacceptable, it sends a rule registration response "failed" to the content providing device 1 (Step... ...and takes the measures, and then the processing of the above (1) and the following is re-performed.

(3) On the other hand, when the **content distribution** management device 17 decides that the rule registration request received from the content providing device 1 is acceptable, it sends a rule registration response "completed... ...a list registration request to the content exchanging device 15 via the network 19 in order to register information required for search for selecting a **content** which is to be **distributed** to a user (Step S411). In this case, the information such as usage rules, payment information and others is sent per content name, as shown...the content providing device 1 receives the list registration response "completed", it performs the processing as shown in (7) below and the following.

(7) The **content distributing** device A 11 specifies a search keyword ("content A" or the like as a content name, for example) (Step S420), and sends a list search... ...network 19 and a list of the search results.

(8) The content exchanging device 15 checks details of the list search request received from the **content distributing** device A 11. As a result of the check, when the content exchanging device 15 decides that the list search request is unacceptable, it sends a list search response "failed" to the **content distributing** device A 11 (Step S423). When the **content distributing** device A 11 receives the list search response "failed", a user tracks down the factors of the problem of being "failed" and takes the measures... ...the above (7) and the following is re-performed.

(9) If the content exchanging device 15 decides that the list search request received from the **content distributing** device A 11 is acceptable, it sends a list search response "completed" as well as a list of the search results to the **content distributing** device A 11 (Step S423). When the **content distributing** device A 11 receives the list and the list search response "completed", it performs the processing as shown in (10) below and the following.

(10) The **content distributing** device A 11 selects a content that meets desired usage rules among the received list, (and thereby, a distributor device of this content is specified). At this time, the **content distributing** device A 11 sets weighting factors corresponding to the degree of closeness to the desired usage rules, and selects a content having the biggest value obtained by multiplying weighting factors of respective usage rules. In Fig. 6A, for example, assume that a user of the **content distributing** device A 11 makes a keyword search using a key word "content A" as a "content name", and as a result, a content A 401... ...Note that it may be configured so that the above processing for selecting a content be performed in the content exchanging device 15.

(11) The **content distributing** device A 11 sends a **content distribution** request to the **content** providing device 1 in order to receive the **distribution** of the **content** A 403 selected in the above-mentioned processing (10) (Step S431). This corresponds to the processing of a 403 **content distribution** request (Step S505) in Fig. 5. The **content distributing** device A 11 usually requests the **content** providing device 1 to **distribute** a **content** to the **content distributing** device A 11 itself. However, a user of the **content distributing** device A 11 can specify another device (the **content distributing** device B 13, for example) than the device that made the request (that is, the **content distributing** device A 11) as a device to be distributed, because a device to distribute and a device to be **distributed** as well as a **content** are specified when a **content distribution** request is made (Step S433B). In other words, it becomes possible to make **distribute** a **content** as a gift.

(12) The content providing device 1 checks details of the **content distribution** request received from the **content distributing** device A 11. As a result of the check, when the content providing device 1 decides that the **content distribution** request is unacceptable, it sends a **content distribution** response "failed" to the **content distributing** device A 11

(Step S433, Step S507). When the **content distributing** device A 11 receives the **content distribution** response "failed", a user tracks down the factors of the problem of being "failed" and takes the measures, and then the above-mentioned processing of (11) and the following are re-performed.

(13) When the content providing device 1 decides that the **content** distribution request received from the **content distribution** device A 11 is acceptable, it sends a **content distribution** response "completed" as well as a **non-purchased** encrypted **content** to the **content distributing** device A 11 (Step S433). In Fig. 5, this corresponds to the processing of a 403 **content distribution** response (Step S507) in Fig. 5. When the **content distributing** device A 11 receives the **content distribution** response "completed", it performs the processing as shown in (14) below and the following.

Note that, in Fig. 4, the case where a **content** is **distributed** from the **content** providing device 1 to the **content distributing** device B 13 as a gift is shown by dashed lines.

(14) The **content distributing** device A 11 sends a content purchase request to the **content distribution** management device 17 in order to purchase a content based on a user's ...details of copyright-related information as each usage rule. Thereby, even if a request to use a content in a new manner arises and a **content distributing** device meeting this request is produced, it is possible to extend the system of the present invention flexibly by adding a new function for usage rule processing to a **content distributing** device as a distributor (a **content** providing device in the present invention). Note that when the **content distributing** device A 11 **distributes** a **non-purchased content**, that is, it intermediates a **content**, the following processing (15) (equivalent to)(17) is not performed.

(15) The **content distribution** management device 17 checks details of the content purchase request received from the **content distributing** device A 11. As a result of the check, when the **content distribution** management device 17 decides that the content purchase request is unacceptable, it sends a content purchase response "failed" to the **content distributing** device A 11. When the **content distributing** device A 11 receives the content purchase response "failed", a user tracks down the factors of the problem of being "failed" and takes the measures, and then the above processing of (14) and the following is performed.

(16) When the **content distribution** management device 17 decides that the content purchase request received from the **content distributing** device A 11 is acceptable, it updates the details of the management information table 400 stored in the memory unit 179 of the **content distribution** management device 17, and sends a content purchase response "completed" as well as copyright-related information to the **content distributing** device A 11 (Step S453). This corresponds to the processing of a 403 purchase response (reproduction 1 day, distributed one by one among 7 rights) (Step S511) in Fig. 5. When the **content distributing** device A 11 receives the purchase response "completed" and so on, it performs the processing of (17) below and the following.

More specifically, in order... ...rights of a new added content A 411 is described as "7". Further, the "address of distributor" of the content A 411 is revised from "**content** providing device" to "**content distributing** device A". Note that since a content is purchased in this example, "payment information" of the content A 411 is described as "not for sale... ...key information of the content A 411 "zzz", which is different from the key information of the content A 403 "yyy", is received from the **content distribution** management device 17 and described.

Further, the **content distribution** management device 17 acquires 1 yen, for example, as a management fee for right movement from the content providing device 1 or the **content distributing** device A 11 to make a profit. Note that as a business of the owner of the **content distribution** management device 17, he/she may, instead of or in addition to acquiring the above management fee, add an advertisement such as an e-mail... ...the owner acquires 1 yen of an advertising rate for one addition of the advertisement, regardless of the advertisement style.

When a user of the **content distributing** device A 11 exercises reproduction rights for 4 days of a content after he/she purchases it, the number of **rights** on the **management** information table 400 is revised from "7" to "3" by a copyright management processing unit 173 of the **content distribution** management device 17, as shown in a column of the content A 411 in Fig. 6C. When the reproduction rights are exercised, the **content distributing** device A 11 makes a **license** request to the **content distribution management** device 17 every time the reproduction right is exercised second and onward. The **content distribution management** device 17 decides the **licensing** based on the remaining number of reproduction rights and sends back the license response. The **content distributing** device A 11 receives the license response (including usage rules) and then the user views the content.

Note that when a user of the **content distributing** device A 11 purchases many (1,000, for example) number of rights, it is troublesome to make a **license** request to the **content distribution management** device 17 every time of the purchase. In such a case, it can be controlled so that the number of rights is decremented every time the usage rule deciding unit 125 reproduces the content while the purchased number of rights is stored in the memory 123 of the **content distributing** device A 11. In this case, the user of the **content distributing** device A 11 prohibits access to the number of rights stored in the memory unit 123.

Note that as to the copyright-related information, the usage rules are **distributed** from the **content distribution** management device 17 to the **content distributing** device A 11 in a minimum unit (any ...purchased under the rule of 1-time use or control free, it is used or controlled without making a license request. As a result, the **content distributing** device A 11 to which the usage rules are distributed decides the minimum unit of the usage rules only and performs the processing.

(17) The **content distribution** management device 17 sends a distribution notice (a purchase notice) to the content providing device 1. Thereby, it is notified that the rights to use... ...purchase notice, 1,400 yen) (Step S513) in Fig. 5.

(18) When the content providing device 1 receives the allocation notice (purchase notice) from the **content distribution** management device 17, it sends an allocation confirmation (a purchase confirmation) to the **content distribution** management device 17 (Step S473). This corresponds to the processing of an allocation confirmation (a purchase confirmation, 1,400 yen) (Step S515) in Fig. 5.

As described above, the system for performing copyright management and payment management concerning the copyrights independently upon **distribution** of an encrypted **content** in a **content distribution** management device is built, and thereby it becomes possible to prevent copyright infringements caused by illegitimate file exchange or the like.

(The Second Embodiment)

In the first embodiment, the case where copyright management and payment management in a **primary circulation** of a content are performed by a **content distribution** management device was explained. In the second embodiment, the case where copyright management and payment management in a **secondary circulation** of a content are performed by a **content distribution** management device will be explained.

Note that explanation of the configuration similar to that of the first embodiment will be omitted, and instead, the configuration peculiar to the second embodiment will be focused on.

Fig. 7 is a block diagram showing a functional configuration of each device in a **content distribution** management system 20 according to the second embodiment, in which how communication is performed between each device in a **secondary circulation** of a **content** is illustrated. More specifically, Fig. 7 is a diagram showing the case where the **content distributing** device B 13 receives an encrypted **content** in a **secondary circulation** from the **content distributing** device A 11 which obtained the **content** in a primary **circulation** (purchased or **non-purchased**). Although the functional configuration of the **content distributing** device B 13 is newly illustrated in Fig. 7, it is basically same as that of the **content distributing** device A 11 in the above first embodiment. Note that the **content distributing** device A 11 in Fig. 7 also has functions of the **content** providing device 1 in the first embodiment. Further, when a non-**purchased content** is purchased in a **secondary circulation**, the **content distribution** management device 17 allocates an intermediary fee to an intermediary of the content, and collects a management fee from at least one of a provider... ...management fee from plural ones or all of these, of course. When a content is provided by the content providing device 1, intermediated by the **content distributing** device A 11, and then purchased by the content providing device B 13, for example, the **content distribution** management device 17 allocates an intermediary fee to the **content distributing** device A 11, and

collects a management fee from the content providing device 1 and the **content distributing** device B 13.

Fig 8 is a diagram of a communication sequence in the case where a purchased **content** and a **non-purchased content** according to the second embodiment are in a **secondary circulation**. Here, "a purchased **content**" means an encrypted **content** that can be decrypted because payment processing was performed between a **content distributing** device and a **content distribution** management device, and "a **non-purchased content**" means an encrypted **content** that can not be decrypted because payment processing was not performed between a **content distributing** device and a **content distribution** management device.

The communication sequence of Fig. 8 is different from that of Fig. 4 in that an intermediation notice that an intermediary fee will be allocated from the **content distribution** management device 17 to the **content distributing** device A 11 is added, when the **content distributing** device B 13 purchased a content through the intermediation of the **content distributing** device A 11. Note that when the **content distributing** device B 13 secondarily circulates a content which was purchased by the **content distributing** device A 11 in a **primary circulation**, the communication sequence of Fig. 8 is same as that of Fig. 4 where a content is primarily circulated from the content providing device 1 to the **content distributing** device A 11 in the first embodiment.

Fig. 9 is a diagram showing a detailed example of information which is communicated between each device with the **content distribution** management device 17 as a center in the case where the **content distributing** device A 11 secondarily circulates a content which was purchased from the content providing device 1 further to the **content distributing** deice B 13. Note that in Fig. 9, communication of information in a **primary circulation** and a **content distribution** processing from the **content distributing** device A 11 to the **content distributing** device B 13 in a **secondary circulation** are omitted.

Figs. 10A (equivalent to) 10D are examples showing how details of a management information table 600 managed in the **content distribution** management device 17 change in the case where a content is purchased in a **primary circulation** and further **circulated** secondarily.

Fig. 11 is an example of a table showing a circulation history of a content. In the table of Fig. 11, addresses of distributor...becomes possible to allocate purchase charges more carefully based on this table.

Fig. 12 is an example showing how communication is specifically performed in the **content distribution** management device 17 in the case where a **non-purchased content** that was **distributed** in a **primary circulation** is secondarily **circulated**. Note that communication in the **primary circulation** is omitted in Fig. 12.

Figs. 13A, 13B are examples showing how details of a management information table 700 managed in the **content distribution** management device 17 change in the case where a **non-purchased content** is secondarily **circulated**.

Methods of copyright management and payment management in the case of a **secondary circulation** of a **content** in the **content distribution** management device 17 as shown in Fig. 7 will be explained below with reference to Fig. 7 (equivalent to) Fig. 13.

(19) The **content distributing** device A 11 purchases a content A 601 according to the procedures similar to those of the first embodiment mentioned above (similar to Step S501 (equivalent to) Step S515 in Fig. 5). Further, the **content distributing** device A 11 sends a rule registration request of a content A 611 which is distributable to other **content distributing** devices via the network 19 to the **content distribution** management device 17 (Step S801). This corresponds to the processing of a 611 rule registration request (Step S613) in Fig. 9. This corresponds to the case where a user of the **content distributing** device A 11 offers a content A with the remaining number of rights of 3 for sale, or secondhand sale of a content, as shown in Fig. 10C.

(20) The **content distribution** management device 17 checks details of the rule registration request received from the **content distributing** device A 11, and sends a rule registration response "failed" to the **content distributing** device A 11 when the request is unacceptable (Step S803), in the same way as the above processing (2). The **content distributing** device A 11 re-performs the processing of (19) above and the following after the factors of the problem of being "failed" are tracked down and the measures are taken, in the same way as the above processing (2).

(21) The **content distribution** management device 17 receives the rule registration request from the **content distributing** device A 11 (Step S801), and when it decides that the rule registration request is acceptable, it sends a rule registration response "completed" to the **content distributing** device A 11 (Step S803). The **content distributing** device A 11 receives the rule registration response "completed", and then performs the processing of (22) below and the following. This corresponds to the processing of a 611 rule registration response (Step S615) in Fig. 9. As a result, the **content distribution** management device 17 revises description in the "payment information" column of the content A 611 in the management information table 600 from "not for sale... ...Fig. 10C, in order to indicate that the content can be purchased under the rule of 180 yen per right for 1 day.

(22) The **content distributing** device A 11 sends a registration request of a list of contents which are distributable to other **content distributing** devices via the network 19 to the content exchanging device 15 (Step S811).

(23) The content exchanging device 15 checks details of the list registration request received from the **content distributing** device A 11, and sends a list registration response "failed" to the **content distributing** device A 11 when the request is unacceptable (Step S813), in the same way as the above processing (5). The **content distributing** device A

11 re-performs the processing of (22) above and the following after the factors of the problem of being "failed" are tracked down... ...measures are taken, in the same way as the above processing (5).

(24) The content exchanging device 15 receives the list registration request from the **content distributing** device A 11, and sends a list registration response "completed" to the **content distributing** device A 11 when this request is acceptable (Step S813), in the same way as the processing (6) above. The **content distributing** device A 11 receives the list registration response "completed", and then performs the processing of (25) below and the following.

(25) The **content distributing** device B 13 specifies a search keyword (Step S820), and sends a search request of a list of contents which a user desires to acquire... ...in the same way as the processing (7) above.

(26) The content exchanging device 15 checks details of the list search request received from the **content distributing** device B 13, and sends a list search response "failed" to the **content distributing** device B 13 when the request is unacceptable (Step S823), in the same way as the above processing (8). The **content distributing** device B 13 re-performs the processing of (25) above and the following after the factors of the problem of being "failed" are tracked down... ...measures are taken, in the same way as the above processing (8).

(27) The content exchanging device 15 receives the list search request from the **content distributing** device B 13, and sends a list search response "completed" as well as the list to the **content distributing** device B 13 when this request is acceptable (Step S823), in the same way as the processing (9) above. The **content distributing** device B 13 receives the list search response "completed", and then performs the processing of (28) below and the following.

(28) The **content distributing** device B 13 selects a content that meets desired usage rules among the received list (Step S825).

(29) The **content distributing** device B 13 sends a **content distribution** request to the **content distributing** device A 11 (Step S831). This corresponds to the processing of a 703 **content distribution** request (Step S709) in Fig. 12.

(30) The **content distributing** device A 11 checks details of the **content distribution** request received from the **content distributing** device B 13, and sends a **content distribution** response "failed" to the **content distributing** device B 13 when the request is unacceptable (Step S833), in the same way as the above processing (12). The **content distributing** device B 13 re-performs the processing of (29) above and the following after the factors of the problem of being "failed" are tracked down and the measures are taken, in the same way as the above processing (12).

(31) The **content distributing** device A 11 receives the **content** distribution request from the **content distributing** device B 13, and sends a **content distribution** response "completed" as well as the **non-purchased content** or the purchased **content** to the **content distributing** device B 13 when this request is acceptable (Step S833), in the same way as the processing (13) above. The **content distributing** device B 13 receives the **content distribution** response "completed", and then performs the processing of (32) below and the following. This corresponds to the processing of a 703 **content distribution** (Step S711) in Fig. 12.

(32) By an operation of a user of the **content distributing** device B 13, a **content** purchase request is sent via the network 19 from the user interface unit 131 of the **content distributing** device B 13 to the **content distribution** management device 17 in order to purchase a content (Step S851). This corresponds to the processing of a 611 purchase request (reproduction 1 day, 1... ...Fig. 9, and the processing of a 703 purchase request (reproduction 1 day, 1 right, 200 yen) (Step S713) in Fig. 12, respectively.

(33) The **content distribution** management device 17 checks details of the request received from the **content distributing** device B 13, and sends a content purchase response "failed" to the **content distributing** device B 13 when the request is unacceptable (Step S853), in the same way as the above processing (15). The **content distributing** device B 13 re-performs the processing of (32) above and the following after the factors of the problem of being "failed" are tracked down and the measures are taken, in the same way as the above processing (15).

(34) The **content distribution** management device 17 receives the purchase request from the **content distributing** device B 13, and sends a purchase response "completed" as well as the copyright-related information to the **content distributing** device B 13 when this request is acceptable (Step S853), in the same way as the processing (16) above. The **content distributing** device B 13 receives the purchase response "completed", and then performs the processing of (35) below and the following. This corresponds to the processing of... ...of a 703 purchase response (reproduction 1 day, distribution 1 right) (Step S715) in Fig. 12, respectively.

The copyright management processing unit 173 of the **content distribution** management device 17 revises the number of rights of the content A 611 in the management information table 600 from "3" to "2", as shown... ...a content A 711 is added to the management information table 700, and "1" is described for the number of rights. In this case, the **content distribution** management device 17 acquires a management fee for right movement (1 yen, for example) as a profit from the content providing device 1, the **content distributing** device A 11 or the **content distributing** device B 13.

(35) The **content distribution** management device 17 sends an allocation notice (an intermediation notice in the case of intermediating the non-purchased content, and a purchase notice in the case of intermediating the purchased **content**) to the **content distributing** device A 11 (Step S871). This corresponds to the processing of an allocation

notice (purchase notice, 180 yen) (Step S 621) in Fig. 9, and the processing of an allocation notice (intermediation notice, 1 yen) (Step S721) in Fig. 12, respectively.

(36) The **content distributing** device A 11 receives the allocation notice (the intermediation notice in the case of intermediating the non-purchased content, and the purchase notice in the case of intermediating the purchased **content**) from the **content distribution** management device 17, and then sends an allocation confirmation (an intermediation confirmation in the case of intermediating the non-purchased content, and a purchase confirmation in the case of intermediating the purchased **content**) to the **content distribution** management device 17 (Step S873). This corresponds to the processing of an allocation confirmation (purchase confirmation 180 yen) (Step S623) in Fig. 9, and the processing of an allocation confirmation (intermediation confirmation 1 yen) (Step S723) in Fig. 12, respectively.

(37) When the **non-purchased content** was intermediated, the **content distribution** management device 17 sends an allocation notice (a purchase notice) to the content providing device 1 which provided the content (Step S891). This corresponds to... ...according to an intermediary allocation rate (1 yen/right (0.5%)).

(38) The content providing device 1 receives the allocation notice (purchase notice) from the **content distribution** management device 17, and then sends an allocation confirmation (a purchase confirmation) to the **content distribution** management device 17 (Step S893). This corresponds to the processing of the allocation confirmation (purchase confirmation, 199 yen) (Step S723) in Fig. 12.

Fig. 14 shows lists of data regarding intermediaries registered corresponding to IDs of devices such as the above content providing device and the **content distributing** devices. Note that these device Ids are defined uniquely by the above addresses. These lists are registered in the memory unit 179 of the **content distribution** management device 17. These lists 130, 140, 150 are used for preventing a content from being purchased by a dishonest intermediary.

As for the content... ...by the content providing device 1 is registered.

Fig. 15 is a flowchart showing a flow of payment allocation processing among payment processing in the **content distribution** management device 17.

First, when the **content distribution** management device 17 receives a purchase request (Step S1401), it checks whether the content purchase request includes an intermediary ID or not (Step S1402). When the intermediary ID is included, the **content distribution** management device 17 judges that a **non-purchased content** was intermediated. When the intermediary ID of the content is identical with the intermediary ID registered in the memory unit 179, the **content distribution** management device 17 allocates an intermediary fee to the intermediary, as well as allocates a purchase charge to the distributor of the content (Steps S1406, 1403, 1404).

On the other hand, when the intermediary ID is not included, the **content distribution** management device 17 judges that a purchased content was further purchased, and allocates the purchase charge to the distributor of the content (Steps S1403, 1404).

As described above, it becomes possible to prevent copyright infringements caused by an illegitimate file exchange or the like by building the system for managing **distribution** of an encrypted **content** separately from copyright management and payment management, regardless of a purchased or a **non-purchased content**, even when the **content** is secondarily **circulated**.

Note that although the content exchanging device 15 is different from the **content distribution** management device 17 in the above embodiments, the configuration in which both the content exchanging device 15 and the **content distribution** management device 17 are realized in the same device is also included in the present invention. Further, the configuration in which the **content distributing** devices A 11 and B 13, the content exchanging device 15 and the **content distribution** management device 17 are realized in the same device is also included in the present invention.

On the other hand, since the content providing device 1 is not specifically distinguished from the **content distributing** devices A 11 and B 13 from a functional viewpoint, it can be considered to be a kind of a **content distributing** device. Therefore, it is obvious that each user of each **content distributing** device may be a **content** provider.

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Country	Number	Kind	Date

Legal Status Type	Pub. Date	Kind	Text

Language

Fulltext Availability Available Text	Language	Update	Word Count
Total Word Count (Document A)			
Total Word Count (Document B)			
Total Word Count (All Documents)			

Specification: ...without any appropriate approach taken to protect the copyright, the copyright owner may have his/her right infringed significantly.

However, prioritizing copyright protection and preventing **content** data **distribution** on a rapidly expanding **digital** information communication **work**, is disadvantageous to

copyright owners, who basically can collect a predetermined copyright fee for copying content data.

In contrast, if digital data recorded in a... ...significant degradation and accordingly equipment is configured to prevent copying music data from a recordable MD to another MD and thus protect copyright.

As such, **distributing music** data, image data and other similar data to the public on a digital information communication network is itself a behavior subject to a restriction attributed... ...to the public on an information communication network and received.

Disclosure of the Invention

One object of the present invention is to provide a data **distribution** system capable of **distributing content** data on an information communication network for example of cellular phones, and a recording device for use in the data distribution system, more specifically a memory card.

Another object of the present invention is to provide a data distribution system capable of preventing **distributed content** data from being replicated without permission of the copyright owner, and a recording device for use in the data distribution system, more specifically a memory...a data distribution system of the present invention.

Fig. 2 is a list of characteristics of data, information and the like used in a data **distribution** system of a **first** embodiment for communication.

Fig. 3 is a list of characteristics of key data and the like used in the data **distribution** system of the **first** embodiment.

Fig. 4 is a schematic block diagram showing a configuration of the Fig. 1 license server.

Fig. 5 is a schematic block diagram showing... ...illustrates contents of access restriction information AC1.

Figs. 9 and 10 are first and second flow charts, respectively, for illustrating an operation of the data **distribution** system of the **first** embodiment in a **distribution** session.

Fig. 11 is a flow chart for illustrating an operation in a reproduction session according to the first embodiment.

Figs. 12, 13 and 14... ...components are denoted by like reference characters.

Note that hereinafter a description will by way of example be provided of a configuration of a data **distribution** system **distributing** digital **music** data to each cellular phone user on a cellular phone work, although, as will be apparent from the following description, the present invention is not limited thereto and it is also applicable to **distributing** other

types of **content** data, ...data, game programs and other similar content data, on different information communication networks.

First Embodiment

With reference to Fig. 1, music data in copyright is **managed** in a **license** server 10 using a predetermined encryption system to encrypt music data, (hereinafter also referred to as "content data") and feeding such encrypted content data to... ...for distributing data. An authentication server 12 determines whether a cellular phone, a memory card or the like of a cellular phone user accessing for **distribution** of **music** data is authentic equipment.

Distribution carrier 20 receives a distribution request from each cellular phone user and relays it via its cellular phone network to license server 10. License server... ...12 that the cellular phone user is using an authentic cellular phone, memory card and the like and license server 10 further encrypts the requested **content** data and **distributes** the encrypted **content** data via the cellular phone network of distribution carrier 20 to the cellular phone of the cellular phone user.

In Fig. 1, for example a... ...license server 10, authentication server 12 and distribution carrier 20 will generally be referred to as a distribution server 30.

Furthermore, a process of transmitting **content** data from **distribution** server 30 for example to each cellular phone will be referred to as "**distribution**."

As such, **first** of all, if memory card 110 is not used, **content** data **distributed** by **distribution** server 30 can hardly be received or reproduced as **music**.

Furthermore, if whenever **distribution** carrier 20 **distributes** the **content** data of a single piece of **music** the **distribution** frequency increments and whenever a cellular phone user receives or downloads the content data a copyright fee incurs and it is collected by distribution carrier 20 together with the phone toll of the cellular phone, the copyright owner can readily collect the copyright fee.

Furthermore such **distribution** of **content** data is also advantageous as it is provided in a closed system in a form of a cellular phone network, which facilitates developing an approach... ...Internet.

In this context, for example a cellular phone user 2 having a memory card 112 can directly receive with his/her cellular phone 102 **content** data **distributed** from **distribution** server 30. If cellular phone user 2 receives directly from **distribution** server 30 **content** data or the like having a significant amount of information, however, the data reception may require a relatively long period of time. It would be more convenient for user 2 if the user can copy the content data from cellular phone user 1 having already received the **content** data **distributed** from **distribution** server 30.

As shown in Fig. 1, copying content data from cellular phone user 1 to the cellular phone user 2 equipment together with the... ...and limit information on license ID, access reproduction and the like corresponding to the information relating to copyright protection, and other similar information.

Thus, once **content** data **distributed** from **distribution** server 30 is received, it can be used on the receiving side flexibly.

Furthermore, if cellular phones 100 and 102 are personal handy phones (PHSs... ...a function can thus be used to replicate information between cellular phone users 1 and 2.

In the Fig. 1 configuration, to allow encrypted and **distributed content** data to be reproduced on the side of a cellular phone user, a system is initially required to be a system for distributing an encryption key in a communication, secondly the exact system encrypting **content** data to be **distributed**, and thirdly a configuration implementing decryption key protection for preventing such **distributed content** data from being copied without permission.

In the present embodiment, in particular when any of distribution, reproduction and replication sessions occurs, whether or not the... ...level.

Fig. 2 is a list of characteristics of data, information and the like used in the Fig. 1 data distribution system for a communication.

Initially, data **distributed** from a distribution server will be described. "Data" is content data such as music data. Content data Data is encrypted, decryptable with a license key...a cellular phone user.

Note that hereinafter, a representation (Y) X will refer to data Y encrypted decryptable with a decryption key X.

Furthermore, the **distribution** server **distributes** together with the encrypted **content** data **additional** information Data-inf corresponding to plaintext information on content data or server access. Furthermore, as the license, there exist a content ID serving as a code for identifying content data Data and a **license** ID serving as a **management** code capable of specifying an issuance of a license, and access restriction information AC1 and reproduction circuit control information AC2 generated from license purchasing condition... ...to keep the secret. Keys Ks1-Ks4 are symmetric keys generated by server 30, cellular phone 100 or 102, memory card 110 or 112 whenever **content** data is **distributed**, reproduced and replicated.

Herein, symmetric keys Ks1-Ks4 are unique symmetric keys generated for each "session" corresponding to a unit of communication or a unit...a signal that can be provided to connector 1120.

Cellular phone 100 further includes a detachably attachable memory card 110 storing and decrypting content data (**music** data) received from **distribution** server 30, a memory interface 1200 controlling data communication between provided memory card 110 and data bus BS2, and an authentication data hold unit 1500... ...Kcom to provide decryption.

Note that for the purpose of simplifying the description, Fig. 5 only shows a cellular phone at a block relating to **distribution** and reproduction of **content** data in accordance with the present invention. The cellular phone of course has a block relating to conversation, which is only partially described herein.

In... ...1106, keyboard 1108, display 1110, audio reproduction unit 1112, connector 1120, external interface 1122, switch unit 1525 and connection terminal 1530 that correspond to the **content** reproduction unit relating to **distributing** and reproducing **content** data. Note that cellular phone 100 may have the block group corresponding to the content reproduction unit that is configured in the form of a... ...when the key is decrypted with authentication key KPma.

By thus providing a public encryption key of a recording device corresponding to a memory card, **distributed content** data, an encrypted license key and the like can be managed for each memory card.

Memory card 110 further includes a data bus BS3 communicating...AC1 is issued by distribution server 30 in a distribution operation according to license purchasing condition AC produced, as designated by a user when a **license** is purchased, and it is **updated** and held in memory card 110 whenever reproduction and replication operations are effected.

Note that in Fig. 6, the portion surrounded by a solid line... ...the Figs. 9 and 10 flow chart will be referred to to describe an operation in a distribution session (hereinafter also referred to as a **distribution** operation) provided in purchasing **content** in the data **distribution** system of the **first** embodiment.

In Figs. 9 and 10 is described an operation when cellular phone user 1 uses memory card 110 to receive via cellular phone 100 content data corresponding to **music** data **distributed** from **distribution** server 30.

With reference to Fig. 9, cellular phone user 1 of cellular phone 100 for example presses a key button on key unit 1108... ...Cp(1))KPma for authentication of a content reproduction circuit, a content ID and license purchasing condition data AC to distribution server 30 (step S104).

Distribution server 30 receives the **content** ID, authentication data (KPp(1)//Cp(1))KPma, (KPmc(1)//Cmc(1))KPma, (KPp(1)//Cp(1))KPma and license purchasing condition AC from cellular...hold unit 1440 (step S144).

When the process up to step S144 normally completes in a memory circuit, cellular phone 100 sends a request to **distribution** server 30 to distribute **content** data (step S146).

Distribution server 30 receives the **content** data **distribution** request, obtains encrypted **content** data (Data)Kc and **additional** information Data-inf from information database 340 and outputs these data on data bus BS1 and via communication device 350 (step S148).

Cellular phone 100... ...and Kmc(1) successfully encrypted and transmitted together with class certificates Cp(1) and Cmc(1), respectively, are also confirmed valid, and only then can **content** data be **distributed** and a sufficient security' level can thus be ensured.

Reference will now be made to Fig. 11 to describe an operation in a reproduction session...be replicated and if the instruction is issued to replicate all of the remaining licenses (step S326) controller 1420 obtains access restriction information AC1 from **license** information hold unit 1440 and **updates** value Sub(underscore)Move to have a value of 0 (step S328).

If a number of licenses to be replicated that is indicated at step... ...S326) then controller 1420 obtains access restriction information AC1 from license information hold unit 1440, subtracts from value Sub(underscore)Move the input number of **licenses** to be replicated, and **updates** access restriction information AC1 in **license** information hold unit 1440 (step S330). When value Sub(underscore)Move attains 0, any subsequent reproduction and replication are prohibited.

Controller 1420 after it has...recorded in memory 1415, distribution server 30 can newly be accessed and only reproduction information can be distributed and received. If only reproduction information is **distributed** and received, again encrypted **content** data (Data)Kc can be reproduced and the user can enjoy listening to the **music**.

Although the process of **distributing** only reproduction information is not represented in the form of a flow chart, it corresponds to the distribution session of Figs. 9 and 10 minus... ...data distribution system of the present embodiment includes a license server 11 in place of license server 10 of distribution server 30 of the data **distribution** system of the **first** embodiment. Furthermore in the present embodiment the data distribution system includes a cellular phone having a configuration of cellular phone 101, rather than that of a difference from the Figs. 9 and 10 flow chart of the distribution operation in the data **distribution** system of the **first** embodiment.

Fig. 17 describes an operation allowing a cellular phone user using memory card 110 to receive via cellular phone 101 content data corresponding to **music** data **distributed** from **distribution** server 31 of the second embodiment.

With reference to Fig. 17 the second embodiment also provides a distribution operation with steps S100 to S128 similar...embodiment can be operated in the same distribution system.

Furthermore, memory card 210 of the third embodiment is also applicable in a combination with the **distribution** system of the **first** embodiment. More specifically, license key Kc and reproduction circuit control information AC2 that are encrypted with secret key Kcom in the form of (Kc//AC2)Kcom can be recorded in reproduction information hold unit 1430.

In connection with the above, the **distribution** system of the **first** embodiment has its process steps modified as will now be described.

The third embodiment,combined with the **first** embodiment provides a **distribution** operation, as described in the first embodiment with reference to the Fig. 10 flow chart, except that a modification is introduced in the steps S140...only in that memory card 210 provides a different internal processing and the systems can thus be operated compatible with each other.

Note that the **distribution** system of the **first** embodiment differs only in the memory card's internal operation and memory card 110 of the first embodiment is thus compatible with memory card 210 of the third embodiment, and in that sense the **distribution** systems of the **first** and third embodiment can be combined together and thus operated in a single distribution system.

Note that while in Fig. 21 reproduction information hold unit...

Claims: ...A1

1. A data **distribution** system comprising:

a **content** provision device (10, 11) provided to **distribute** encrypted **content** data ((Data)Kc) and a license key (Kc) serving as a decryption key decrypting said encrypted content data to obtain plain content data (Data); and

a plurality of terminals (100, 101) receiving the **distribution** from said **content** provision device, wherein:

said content provision device includes

a first interface unit (350) provided to communicate data externally, and

a distribution control unit (315) operative... ...an output of said first license data encryption unit with said second symmetric key decrypted by said session key decryption unit, for provision via said **first** interface unit for **distribution**;

said deciphering unit (110, 210) further has

a first authentication data hold unit (1400) holding said first public encryption key determined to correspond to said... ...second decryption unit (1412) receiving said reproduction information and access restriction information encrypted with said second symmetric key and said second public encryption key and **distributed** from said **content** provision device, for decryption with said second symmetric key,

a third key hold unit (1421) holding a second private decryption key (Km(i)) decrypting data...

10/K/3 (Item 3 from file: 348)
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Country	Number	Kind	Date

Abstract ...to a memory device, such as a memory card, and a content reproduction circuit, such as a cellular phone, that are subjected to revocation of **distributing**, reproducing and transferring **content** data. A **distribution** control unit (315) suspends an operation **distributing content** data if the **distribution** is addressed to a class listed on the revocation list. The revocation list is also held in the memory card and distribution control unit (315) in **distributing content** also transmits information for updating the revocation list in the memory card.

Legal Status Type	Pub. Date	Kind	Text

Language

Fulltext Availability	Available Text	Language	Update	Word Count
Total Word Count (Document A)				
Total Word Count (Document B)				
Total Word Count (All Documents)				

Specification: ...without any appropriate approach taken to protect the copyright, the copyright owner may have his/her right infringed significantly.

However, prioritizing copyright protection and preventing **content** data **distribution** on a rapidly expanding **digital** information communication **work**, is disadvantageous to copyright owners, who basically can collect a predetermined copyright fee for copying content data.

In contrast, if digital data recorded in a... ...without significant degradation and accordingly equipment is configured to prevent copying data from a recordable MD to another MD and thus protect copyright.

As such, **distributing music** data, image data and other similar data to the public on a digital information communication network is itself a behavior subject to a restriction attributed... ...to the public on an information communication network and received.

Disclosure of the Invention

One object of the present invention is to provide a data **distribution** system capable of **distributing content** data on an information communication network for example of cellular phones, and a recording device for use in the data distribution system, more specifically a memory card.

Another object of the present invention is to provide a data distribution system capable of preventing **distributed content** data from being replicated without permission of the copyright owner, and a recording device for use in the data distribution system, more specifically a memory... ...holding a class revocation list listing the first class certification data subjected to revocation of distribution, and a distribution control unit suspending at least a **content** key from **distribution** if the **first** authentication unit obtains the first class certification data listed in the class revocation list held in the class revocation list hold unit.

Preferably each terminal... ...class certification data subjected to revocation. In a distribution operation each terminal outputs encrypted second class certification data to the second interface unit via the **first** interface unit. The **distribution** control unit suspends the distribution operation if the class revocation list held in the class revocation list hold unit includes the second class certification data...a data distribution system of the present invention.

Fig. 2 is a list of characteristics of data, information and the like used in a data **distribution** system of a **first** embodiment for communication.

Fig. 3 is a list of characteristics of data, information and the like used in the data **distribution** system of the **first** embodiment for authentication and operating a revocation class list.

Fig. 4 is a list of characteristics of keys relating to encryption in the data **distribution** system of the **first** embodiment.

Fig. 5 is a schematic block diagram showing a configuration of a license server shown in Fig. 1.

Fig. 6 is a schematic block... ...are denoted by like reference characters and thus will not be described repeatedly.

In the embodiments of the present invention, a configuration of a data **distribution** system **distributing** digital **music** data to each cellular phone user on a cellular phone network will be described by way of example, although, as will be apparent from the following description, the present invention is not limited thereto and also applicable to **distributing** other **content** data, such as that of image information, via other information communication networks.

First Embodiment

With reference to Fig. 1, music data in copyright is **managed** in a **license** server 10 using a predetermined encryption system to encrypt music data, (hereinafter also referred to as "content data") and feeding such encrypted content data to... ...for distributing data. An authentication server 12 determines whether a cellular phone, a memory card or the like of a cellular phone user accessing for **distribution** of **music** data is authentic equipment.

Distribution carrier 20 receives a distribution request from each cellular phone user and relays it via its cellular phone network to license server 10. License server... ...12 that the cellular phone user is using an authentic cellular phone, memory card and the like and license server 10 further encrypts the requested **content** data and **distributes** the encrypted **content** data via the cellular phone network of distribution carrier 20 to the cellular phone of the cellular phone user.

In Fig. 1, for example a... ...license server 10, authentication server 12 and distribution carrier 20 will generally be referred to as a distribution server 30.

Furthermore, a process of transmitting **content** data from **distribution** server 30 for example to each cellular phone will be referred to as "**distribution**."

As such, **first** of all, if memory card 110 is not used, **content** data **distributed** by **distribution** server 30 can hardly be received or reproduced as **music**.

Furthermore, if whenever **distribution** carrier 20 **distributes** the **content** data of a single piece of **music** the **distribution** frequency increments and whenever a cellular phone user receives or downloads the content data a copyright fee incurs and it is collected by distribution carrier 20 together with the phone toll of the cellular phone, the copyright owner can readily collect the copyright fee.

Furthermore such **distribution** of **content** data is also advantageous as it is provided in a closed system in a form of a cellular phone network, which facilitates developing an approach... ...Internet.

In this context, for example a cellular phone user 2 having a memory card 112 can directly receive with his/her cellular phone 102 **content** data **distributed** from **distribution** server 30. If cellular phone user 2 receives directly from **distribution** server 30 **content** data or the like having a significant amount of information, however, the data reception may require a relatively long period of time. It would be more convenient for

user 2 if the user can copy the content data from cellular phone user 1 having already received the **content** data **distributed** from **distribution** server 30.

As shown in Fig. 1, copying content data from cellular phone user 1 to the cellular phone user 2 equipment together with the... ...and limit information on license ID, access reproduction and the like corresponding to the information relating to copyright protection, and other similar information.

Thus, once **content** data **distributed** from **distribution** server 30 is received, it can be used on the receiving side flexibly.

Furthermore, if cellular phones 100 and 102 are personal handy phones (PHSs... ...a function can thus be used to transfer information between cellular phone users 1 and 2.

In the Fig. 1 configuration, to allow encrypted and **distributed content** data to be reproduced on the side of a cellular phone user, a system is initially required to be a system for distributing an encryption key in a communication, secondly the exact system encrypting **content** data to be **distributed**, and thirdly a configuration implementing content data protection for preventing such **distributed content** data from being copied without permission.

In the present embodiment, in particular when any of distribution, reproduction and transfer sessions occurs, whether or not the... ...data.

Fig. 2 is a list of characteristics of data, information and the like used in the Fig. 1 data distribution system for a communication.

Initially, data **distributed** from a distribution server will be described. "Data" is content data such as music data. Content data Data is encrypted, decryptable with a license key Note that hereinafter, a representation (Y) X will refer to data Y encrypted decryptable with a decryption key X.

Furthermore, the **distribution** server **distributes** together with the encrypted **content** data **additional** information Data-inf corresponding to plaintext information on content data or server access. Furthermore, as the reproduction information, there exist, other than license key Kc, a content ID serving as a code for identifying content data Data and a **license** ID serving as a **management** code capable of specifying an issuance of a license, and access restriction information AC1 and reproduction circuit control information AC2 generated from license purchasing condition... ...to as reproduction information.

Reference will now be made to Fig. 3 to describe characteristics of data, information and the like used in a data **distribution** system of the **first** embodiment for an authentication and operating a revocation class list.

In the present embodiment the class revocation list (CRL) is used to revoke **content** data **distribution**, reproduction and transfer for each recording device (memory card) and each content reproduction circuit (cellular phone) class. Hereinafter, CRL will also represent data in the... ...class revocation list includes CRL data listing classes of content reproduction circuits and memory cards that are revoked from receiving, reproducing and transferring a distributed **license**.

CRL data is **managed** in the distribution server and also recorded and thus held in a memory card. Such a class revocation list needs to be upgraded, as appropriate secret. Keys Ks1-Ks4 are symmetric keys generated by server 30, cellular phone 100 or 102, memory card 110 or 112 whenever **content** data is **distributed**, reproduced and transferred.

Herein, symmetric keys Ks1-Ks4 are unique symmetric keys generated for each "session" corresponding to a unit of communication or a unit...a signal that can be provided to connector 1120.

Cellular phone 100 further includes a detachably attachable memory card 110 storing and decrypting content data (**music** data) received from **distribution** server 30, a memory interface 1200 controlling data communication between provided memory card 110 and data bus BS2, and an authentication data hold unit 1500... ...to a headphone 130.

Note that for the purpose of simplifying the description, Fig. 6 only shows a cellular phone at a block relating to **distribution** and reproduction of **music** data in accordance with the present invention. The cellular phone of course has a block relating to conversation, which is only partially described herein.

Furthermore, the cellular phone can be used more conveniently if in cellular phone 100 the entirety of the block relating to **distribution** and reproduction of **content** data, as shown in Fig. 6, surrounded by a dotted line excluding a block relating to a conversation-processing, is provided in the form of... ...holding public encryption key KPm(1) decryptable with Km(1).

By thus providing an encryption key of a recording device corresponding to a memory card, **distributed content** data, an encrypted license key and the like can be managed for each memory card.

Memory card 110 further includes a data bus BS3 communicating...flow chart.

Initially the Figs. 8 and 9 flow chart will be referred to to describe a distribution operation, (hereinafter also referred to as a **distribution** session) provided in purchasing **content** in the data **distribution** system of the **first** embodiment.

In Figs. 8 and 9 is described an operation when cellular phone user 1 uses memory card 110 to receive via cellular phone 100 content data corresponding to **music** data **distributed** from **distribution** server 30.

With reference to Fig. 8, cellular phone user 1 of cellular phone 100 for example presses a key button on key unit 1108... ...Cp(1))KPma for authentication of a content reproduction circuit, a content ID and license purchasing condition data AC to distribution server 30 (step S104).

Distribution server 30 receives the **content** ID, authentication data (KPmc(1)//Cmc(1))KPma, authentication data (KPp(1)//Cp(1))KPma and license purchasing condition AC from cellular phone 100, in...hold unit 1440 (step S150).

When the process up to step S150 normally completes in a memory circuit, cellular phone 100 sends a request to **distribution** server 30 to distribute **content** data (step S152).

Distribution server 30 receives the **content** data **distribution** request, obtains encrypted **content** data (Data)Kc and **additional** information Data-inf from information database 340 and outputs these data on data bus BS1 and via communication device 350 (step S154).

Cellular phone 100... ...and Kmc(1) successfully encrypted and transmitted together with class certificates Cp(1) and Cmc(1), respectively, are also confirmed valid, and only then can **content** data be **distributed** in response only to a distribution request from equipment without class certificates Cp(1) or Cmc(1) found in the class revocation list, i.e...moves on to a subsequent step S322, and it obtains a corresponding content ID and license ID from license information hold unit 1440, and furthermore **updates** access control information AC1 in **license** information hold unit 1440 and records that any subsequent reproduction and transfer are revoked (step S324). Responsively, in reproduction and transfer sessions the access control...server 30 and simply receiving a distribution of reproduction information allows encrypted content data to be again reproduced to allow the user to enjoy the **music**. The **distribution** process simply with reproduction information, although not shown in the Figs. 8 and 9 flow chart, is a process excluding steps S152, S154, S156 and... ...permission list corresponding to version data CRL(underscore)ver and differential data CRL(underscore)dat in operating the class revocation list that are output from **distribution** server 30 when **content** data is **distributed** or in response to a request from a user.

In this case, any class corresponding to a reproduction circuit or memory card with a key...data distribution system of the present embodiment includes a license server 11 in place of license server 10 of distribution server 30 of the data **distribution** system of the **first** embodiment. Furthermore in the present embodiment the data distribution system includes a cellular phone having a configuration of cellular phone 101, rather than that of... ...Fig. 15 a description will be made of a difference from the Figs. 8 and 9 flow chart of the distribution operation in the data **distribution** system of the **first** embodiment.

With reference to Fig. 15, the process up to step S132 is identical to that in the Fig. 8 flow chart. As has been... ...be described.

With reference to Fig. 16, the data distribution system of the second embodiment is different in reproduction operation from the Fig. 10 data **distribution** system of the **first** embodiment in that steps S222-S226 are replaced by steps S222a-S226a.

Steps S222a-S226a differ from steps S222-S226 in that license key Kc...of the third embodiment. In the present embodiment the data distribution system in a distribution session operates to effect step S100 (the generation of a **content distribution** request through the acquisition of license key Kc in distribution server 30 from a database) through step S142, as has been described with reference to...

Claims: ...A1

1. A data distribution system comprising:

a plurality of terminals (100, 101); and

a **content** provision device (10, 11) **distributing** encrypted **content** data ((Data)Kc) and a license key (Kc)to said plurality of terminals, said license key serving as a decryption key decrypting said encrypted content...interface unit (350) and said second interface unit (1102) are connected together by a cellular phone network; and

said distribution control unit (315) in said **distribution** operation uses said **first** class certification data (Cmc(m)) to authenticate said deciphering unit (110, 115).

8. The data distribution system of claim 7, wherein each said terminal (100... ...of claim 1, wherein said first storage unit (1415, 1440) is a semiconductor memory and said recording device is a memory card.

15. A data **distribution** system comprising:

a **content** provision device (10, 11) provided to **distribute** encrypted **content** data ((Data)Kc) and a license key (Kc) serving as a decryption key decrypting said encrypted content data to obtain plaintext content data (Data); and

a plurality of terminals (100, 101) receiving the **distribution** from said **content** provision device (10, 11), wherein:

said content provision device includes

a first interface unit (350) provided to externally communicate data,

a first authentication unit (312... ...revocation list (CRL) listing said first class certification data subjected to revocation of distribution of said license key,

a distribution control unit (315) suspending a **distribution** operation **distributing first** reproduction information at least including said license key, if said first authentication

unit obtains said first class certification data listed on said class revocation list...an output of said first license data encryption unit with said second symmetric key decrypted by said session key decryption unit, for provision to said **first** interface unit for **distribution**;

each said terminal includes

a second interface unit (1102) provided to externally communicating data, and

a distributed-data deciphering unit (110, 115) receiving and recording... ...encrypted in said content provision device (10, 11) with said second public encryption key (KPm(i)), further encrypted with said second symmetric key (Ks2), and **distributed** together with said **first** reproduction information, for decryption with said second symmetric key and said second private decryption key (Km(i)); and

said first storage unit (1415, 1440) further... ...holding said class revocation list (CRL), and

a control unit (1420) operative in response to issuance of an instruction to effect a distribution operation to **distribute** said encrypted **content** data ((Data)Kc), to produce update information (CRL(underscore)ver) capable of specifying an update of said class revocation list held in said second storage...encrypted in said content provision device (10, 11) with said second public encryption key (KPm(i)), further encrypted with said second symmetric key (Ks2), and **distributed** together with said **first** reproduction information (AC2), for decryption with said second symmetric key and said second private decryption key (Km(i));

said first storage unit (1440), said deciphering... ...encrypted in said content provision device (10, 11) with said second public encryption key (KPm(i)), further encrypted with said second symmetric key (Ks2), and **distributed** together with said **first** reproduction information (AC2), for decryption with said second symmetric key and said second private decryption key (Km(i));

said first storage unit (1440) further records...private decryption key held in said seventh key hold unit, and extracting said license key for output to said content reproduction unit.

30. A data **distribution** system comprising:

a **content** provision device (10, 11) **distributing** encrypted **content** data ((Data)Kc) and a license key (Kc) serving as a decryption key decrypting said encrypted content data to obtain plaintext content data (Data); and

a plurality of terminals (100, 101) receiving the **distribution** from said **content** provision device (10, 11), wherein:

said content provision device (10, 11) includes

a first interface unit (350) externally communicating data,

an authentication unit (312) receiving... ...decryption with said authentication key,

a class permission list hold unit holding a class permission list listing said class certification data subjected to permission of **distribution** of said encrypted **content** data, and

a **distribution** control unit (315) effecting at least a distribution operation to distribute said license key, if said authentication unit obtains said class certification data listed in...m)) subjected to revocation of communication of said content data;

a control unit (1420) operative in response to issuance of an instruction to effect a **distribution** operation to **distribute** said **content** data, to refer to information received externally via said interface unit (1202) and thus update content of said list in said second storage unit; and...

10/K/4 (Item 4 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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Country	**Number**	**Kind**	**Date**
Legal Status Type	**Pub. Date**	**Kind**	**Text**
Language			

Fulltext Availability	**Available Text**	**Language**	**Update**	**Word Count**
Total Word Count (Document A)				
Total Word Count (Document B)				
Total Word Count (All Documents)				

Specification: ...such as refunds, transmission failures, and purchase disputes. The ClearingHouse(s) 105 can be operated as an independent entity, providing a trusted custodian for rights **management** and metering. It provides billing and settlement as required. Examples of electronic ClearingHouse(s) include Secure-Bank.com and Secure Electronic Transaction (SET) from Visa... ...End-User Device(s) 109 can be any player device that contains an End-User Player Application 195 (described later) compliant with the Secure Digital **Content** Electronic **Distribution** System 100 specifications. These devices may include PCS, set top boxes (IRDs), and Internet appliances. The End-User Player Application 195 could be implemented in... ...or consumer electronics hardware. In addition to performing play, record, and library management functions, the End-User Player Application 195 performs SC processing to enable **rights management** in the

End-User Device(s) 109. The End-User Device(s) 109 manages the download and storage of the SCs containing the Digital Content... ...are used throughout this to mean through the use or running-on an End-User Device(s) 109. 6. Transmission Infrastructures 107

The Secure Digital **Content** Electronic **Distribution** System 100 is independent of the transmission network connecting the Electronic Digital Content Store(s) 103 and End-User Device(s) 109. It supports both... ...designed for a point-to-point distribution model can be adapted to support a broadcast distribution model as well.

C. System Uses

The Secure Digital **Content** Electronic **Distribution** System 100 enables the secure delivery of high-quality, electronic copies of Content 113 to End-User Device(s) 109, whether consumer or business, and to regulate and track usage of the Content 113.

The Secure Digital **Content** Electronic **Distribution** System 100 could be deployed in a variety of consumer and business-to-business services using both new and existing distribution channels. Each particular service could use a different financial model that can be enforced through the **rights management** features of the Secure Digital **Content** Electronic **Distribution** System 100. Models such as wholesale or retail purchase, pay-per-listen usage, subscription services, copy/no-copy restrictions, or redistribution could be implemented through the **rights management** of the ClearingHouse(s) 105 and the End-User Player Application 195 copy protection features.

The Secure Digital **Content** Electronic **Distribution** System 100 allows Electronic Digital Content Store(s) 103 and Intermediate Market Partners a great deal of flexibility in creating services that sell Content 113... ...and metered so that they can receive appropriate compensation for the licensing of Content 113.

II. CRYPTOGRAPHY CONCEPTS AND THEIR APPLICATION TO THE SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM

License Control in the Secure Digital **Content** Electronic **Distribution** System 100 is based on the use of cryptography. This section introduces basic cryptography technologies of the present invention. The use of public key encryption, symmetric key encryption, digital signatures, digital watermarks and digital certificates is known.

A. Symmetric Algorithms

In the Secure Digital **Content** Electronic **Distribution** System 100 the **Content** Provider(s) 101 encrypts the content using symmetric algorithms. They are called symmetric algorithms because the same key is used to encrypt and decrypt data. The data sender and the message recipient must share the key. The shared key is referred to here as the symmetric key. The Secure Digital **Content** Electronic **Distribution** System 100 architecture is independent of the specific symmetric algorithm selected for a particular implementation.

Common symmetric algorithms are DES, RC2 and RC4. Both DES...using Microsoft's CryptoAPI, running on a 120-MHZ, Pentium-based computer with Windows NT 4.0.

B. Public Key Algorithms

In the Secure Digital **Content** Electronic **Distribution** System 100, symmetric keys and other small data pieces are encrypted using public keys. Public key algorithms use two keys. The two keys are mathematically... ...6 kilobits/second with a 512-bit modules and 7.4 kilobits/second with a 1024-bit modules.

C. Digital Signature

In the Secure Digital **Content** Electronic **Distribution** System 100, the issuer of SC(s) protects the integrity of SC(s) by digitally signing it. In general, to create a digital signature of... ...the recovered one. If the message has not being altered during distribution, the calculated digest and recovered digest must be equal.

In the Secure Digital **Content** Electronic **Distribution** System 100, since SC(s) contain several data parts, a digest is calculated for each part and a summary digest is calculated for the concatenated... ...recipient of the message uses the entity's name from the certificate to decide whether or not to accept the message.

In the Secure Digital **Content** Electronic **Distribution** System 100, every SC(s), except those issued by the End-User Device(s) 109, includes the certificate of the creator of the SC(s... ...many End-User(s) do not bother to acquire a certificate or have certificates issued by non bona-fide Certification Authorities. In the Secure Digital **Content** Electronic **Distribution** System 100, the ClearingHouse(s) 105 has the option of issuing certificates to the Electronic Digital Content Store(s) 103. This allows the End-User Device(s) 109 to independently verify that the Electronic Digital Content Store(s) 103 have been authorised by the Secure Digital **Content** Electronic **Distribution** System 100.

E. Guide To The SC(s) Graphical Representation

This document uses a drawing to graphically represent SC(s) that shows encrypted parts, non...symmetric key in this case). Another encrypted object, in this example a Transaction ID encrypted object 205 is shown. And Usage Conditions 206 for content **licensing management** as described below. The SC(s) 200 comprises Usage Conditions 206, Transaction ID encrypted object 205, an Application ID encrypted object 207, and encrypted symmetric... ...created and decrypted in this process overview is a general SC(s). It does not represent any of the specific SC(s) types used for **rights management** in the Secure Digital **Content** Electronic **Distribution** System 100. The process consists of the steps described in FIG.3 for encryption process.

Process Flow for Encryption Process of FIG.3

Process Flow for Decryption Process of FIG.4

III. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM FLOW

The Secure Electronic Digital **Content Distribution** System 100, consists of several components that are used by the different participants of the system. These participants include the Content Provider(s) 101, Electronic... ...via End-User Device(s) 109 and the ClearingHouse(s) 105. A high level system flow is used as an overview of the Secure Digital **Content** Electronic **Distribution** System 100. This flow outlined below tracks Content as it flows throughout the System 100. Additionally it outlines the steps used by the participants to... ...of the Digital Content e.g. music, video and program and electronic distribution systems broadcast.

The following process flow in illustrated in FIG. 1.

IV. **RIGHTS MANAGEMENT** ARCHITECTURE MODEL

A. Architecture Layer Functions

FIG.5 is a block diagram of the **Rights Management** Architecture of the Secure Digital **Content** Electronic **Distribution** System 100.

Architecturally, four layers represent the Secure Digital **Content** Electronic **Distribution** System 100: the License Control Layer 501, the Content Identification Layer 503, Content Usage Control Layer 505, and the Content Formatting Layer 507. The overall... ...required that the output from one layer satisfies format and semantics acceptable to the adjacent layer.

The License Control Layer 501 ensures that:

*the Digital **Content** is protected during **distribution** against illegal interception and tampering;

* the Content 113 originates from a rightful **content** owner and is **distributed** by a licensed distributor, e.g. Electronic Digital Content Store(s) 103;

* the Digital Content purchaser has a properly licensed application;

* the distributor is paid... ...native representation in the content owner's facilities into a form that is consistent with the service features and distribution means of the Secure Digital **Content** Electronic **Distribution** System 100. The conversion processing may include compression encoding and its associated preprocessing, such as frequency equalisation and amplitude dynamic adjustment. For Content 113 which...113 also needs to be processed to achieve a format appropriate for playback or transfer to a portable device.

B. Function Partitioning and Flows

The **Rights Management** Architectural Model is shown in FIG.5 and this illustrates the mapping of the architectural layers to the operating components making up the Secure Digital **Content** Electronic **Distribution** System 100 and the key functions in each layer.

1. Content Formatting Layer 507

The general functions associated with the Content Formatting Layer 507 are... ...113 and its transmission time. Any compression algorithm appropriate for the type of Content 113 and transmission medium can be used in the Secure Digital **Content** Electronic **Distribution** System 100. For **music**, MPEG 1/2/4, Dolby AC-2 and AC-3, Sony Adaptive Transform Coding (ATRAC), and low-bit rate algorithms are some of the typically...Transaction 541 and the License Authorisation 543 are complete and authentic, that the Electronic Digital Content Store(s) 103 has authorisation from the Secure Digital **Content** Electronic **Distribution** System 100 for the sale of electronic Content 113, and that the End-User(s) has a properly licensed application. Audit/Reporting 545 allows the generation of reports and the sharing of licensing transaction information with other authorised parties in the Secure Electronic Digital **Content Distribution** System 100

License control is implemented through SC Processing 533. SC(s) are used to **distribute** encrypted **Content** 113 and information among the system operation components (more about the SC(s) detailed structure sections below). A SC is cryptographic carrier of information that... ...from reputable Certificate Authorities that are used to authenticate those components. The End-User Device(s) 109 are not required to have digital certificates.

C. **Content Distribution** and Licensing Control

FIG.6 is a block diagram illustrating an overview of the **Content Distribution** and Licensing Control as it applies to the License Control Layer of FIG. 5. The figure depicts the case in which the Electronic Digital Content... ...each Content 113 object, the Metadata SC(s) 620 also carries the Store Usage Conditions 519 associated with the Content Usage Control Layer 505.

The **Content** Provider(s) 101 **distributes** the Metadata SC(s) 620 to one or more Electronic Digital Content Store(s) 103 (step601) and the Content SC(s) 630 to one or...End-User Device(s) 109, the ClearingHouse(s) 105 verifies:

1. that the Electronic Digital Content Store(s) 103 has authorisation from the Secure Digital **Content** Electronic **Distribution** System 100 (exists in the Database 160 of the ClearingHouse(s) 105);

2. that the Order SC(s) 650 has not been altered;

3. that...was used to encrypt the encrypted part.

If the SC(s) does not contain any encrypted parts, then there is no Key Description part.

B. **Rights Management** Language Syntax and Semantics

The **Rights Management** Language consists of parameters that can be assigned values to define restrictions on the use of the Content 113 by an End-User(s) after...Key 623 bit string that was used to encrypt the part.

VII. CLEARINGHOUSE(S) 105

A. Overview

The ClearingHouse(s) 105 is responsible for the **rights management** functions of the Secure Digital **Content** Electronic **Distribution** System 100. ClearingHouse(s) 105 functions include enablement of Electronic Digital Content Store(s) 103, verification of rights to Content 113, integrity and authenticity validation of the buying transaction and related information, **distribution** of **Content** encryption keys or Symmetric Keys 623 to End-User Device(s) 109, tracking the distribution of those keys, and reporting of transaction summaries to Electronic... ...Content Store(s) Embodiment

An Electronic Digital Content Store(s) 103 that wants to participate as a seller of Content 113 in the Secure Digital **Content** Electronic **Distribution** System 100 makes a request to one or more of the Digital Content Provider(s) 101 that provide Content 113 to the Secure Digital **Content** Electronic **Distribution** System 100. There is no definitive process for making the request so long as the two parties come to an agreement. After the digital content... ...s) 105 is contacted, usually via E-mail, with a request that the Electronic Digital Content Store(s) 103 be added to the Secure Digital **Content** Electronic **Distribution** System 100. The digital **content** label provides the name of the Electronic Digital Content Store(s) 103 and any other information that may be required for the ClearingHouse(s) 105... ...End-User Device(s) 109 verifies that the Electronic Digital Content Store(s) 103 is a valid distributor of Content 113 on the Secure Digital **Content** Electronic **Distribution** System 100 by **first** checking the digital certificate revocation list and then using the Public Key 621 of the ClearingHouse(s) 105 to verify the information in the digital... ...660 it determines whether a new revocation list is included and if so, the local revocation list on the End-User Device(s) 109 is **updated**.

B. **Rights Management** Processing

Order SC(s) Analysis

The ClearingHouse(s) 105 receives an Order SC(s) 650 from an End-User(s) after the End-User(s...Transaction and Offer SC(s) 641 digital signatures also indirectly verifies that the Electronic Digital Content Store(s) 103 is authorised by the Secure Digital **Content** Electronic **Distribution** System 100. This is based on the fact that the ClearingHouse(s) 105 is the issuer of the certificates. Alternately, the ClearingHouse(s) 105 would...SC(s) 660 to the End-User Device(s) 109. The Electronic Digital Content Store(s) 103 is also expected to participate in managing the **distribution** of **Content** 113 to various countries by performing the same checks as the ClearingHouse(s) 105. The

ClearingHouse(s) 105 does whatever checking that it can in... ...Content 113 purchase transactions and report request transactions. The information can be used for a variety of purposes such as audits of the Secure Digital **Content** Electronic **Distribution** System 100, generation of reports, and data mining.

The ClearingHouse(s) 105 also maintains account balances in Billing Subsystem 182 for the Electronic Digital Content...Store(s) 103 so that the Electronic Digital Content Store(s) 103 can charge the End-User(s)' credit card.

G. Retransmissions

The Secure Digital **Content** Electronic **Distribution** System 100 provides the ability to handle retransmissions of Content 113. This is typically performed by a Customer Service Interface 184. Electronic Digital Content Store... ...the End-User(s) for the purchase of the Content 113.

VIII. CONTENT PROVIDER

A. Overview

The Content Provider(s) 101 in the Secure Digital **Content** Electronic **Distribution** System 100 is the digital content label or the entity who owns the rights to the Content 113. The role of the Content Provider(s) 101 is to prepare the **Content** 113 for **distribution** and make information about the Content 113 available to Electronic Digital Content Store(s) 103 or retailers of the downloadable electronic versions of the Content... ...that the Content 113 is secure when it leaves the Content Provider(s)' 101 domain and never exposed or accessible by unauthorised parties. This allows **Content** 113 to be freely **distributed** throughout a non-secure network, such as the Internet, without fear of exposure to hackers or unauthorised parties.

The end goal of the tools for...Content 113 and information and calls the SC(s) Packer to pack into SC(s).

* Content Dispersement Tool (not shown) - Disperses SC(s) to designated **distribution** centres, such as **Content** Hosting Site(s) 111 and Electronic Digital Content Store(s) 103.

* Content Promotions Web Site 156 - stores Metadata SC(s) 620 and optionally additional promotional...the song file remain available until after Content Quality Control Process 810.

11. Encryption Process 811

The Encryption Process 811 calls the appropriate Secure Digital **Content** Electronic **Distribution Rights Management** function to encrypt each of the watermarked/encoded song files. This process has no dependencies other than completion of all other audio processing. Upon completion...of media, such as several audio CDS, can be queued up so

as to enable the Automatic Metadata Acquisition Tool to create a series of **Content** 113 for electronic **distribution**. For example, all the **Content** 113 could be created from a series of CDS or even selected tracks from one or more CDS examined by the Content Provider(s) 101...design and layout of this site or can choose to use a turnkey web server solution provided as part of the toolkit for Secure Digital **Content** Electronic **Distribution** System 100. To implement their own design for this service, the Content Provider(s) 101 need only provide links to the Metadata SC(s) 620 for Electronic Digital Content Store(s) 103 who access their site. This is accomplished using the toolkit for the Secure Digital **Content** Electronic **Distribution** System 100. The selection process and what information is shown is the discretion of the Content Provider(s) 101.

Metadata SC(s) 620 received into... ...titles, such as CDS, movies and games every year, adding to the tens of thousands of content titles that are currently available. The Secure Digital **Content** Electronic **Distribution** System 100 is designed to support all of the content titles available in stores today.

The numbers of content titles that the Secure Digital **Content** Electronic **Distribution** System 100 may eventually download to customers on a daily basis is in the thousands or tens of thousands. For a large number of titles, this requires a large amount of bandwidth. The computer disk space and bandwidth needs call for a **distributed**, scalable implementation with multiple **Content** Hosting Site(s) 111. The system also supports customers all over the world. This requires overseas sites to speed delivery to the global customers.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 is designed to allow the Content Provider(s) 101 to either host their own Content 113 or share a common facility or a set of facilities.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 consists of multiple Content Hosting Site(s) 111 that collectively contain all of the **Content** 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 and several **Secondary Content** Sites (not shown) that contain the current hot hits offered by the Content Provider(s) 101. The number of Content Hosting Site(s) 111 changes... ...times.

Should the Content Provider(s) 101 choose to host all of their Content 113 in their own system, they can act as a single **Content** Hosting Site 111 with or without **additional Secondary Content** Sites. This allows them to build their own scalable **distributed** system. In another embodiment, Electronic Digital Content Store(s) 103 can also act as Content Hosting Site(s) 111 for certain Content 113. This embodiment...or the download request may be redirected to another Content Hosting Site(s) 111.

2. Content Hosting Site(s) 111 provided by the Secure Digital **Content** Electronic **Distribution** System 100

For the Secure Digital **Content** Electronic **Distribution** System 100 the decision of which site should be used to download the Content 113 is made by the primary content site that received the... ...to make this decision:

* Are there secondary content sites that host the Content 113 requested? (The majority of Content 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 is only located at primary sites);

* Where is the End-User Device(s) 109 geographically located? (This information can be obtained from the... ...is allowed to download the Content 113.

Secondary Content Sites

The Secondary Content Sites (not shown) host the popular Content 113 of the Secure Digital **Content Distribution** System 100. These sites are geographically dispersed across the world and are located near Network Access Points (NAPs) to improve download times. These sites are... ...for Multiple Electronic Digital Content Store(s) 103

Electronic Digital Content Store(s) 103 are essentially the retailers. They are the entities who market the **Content** 113 to be **distributed** to the customer. For **distribution** of **Content** 113, this would include Digital Content Retailing Web Sites, Digital Content Retail Stores, or any business who wishes to get involved in marketing electronic Content... ...Store(s) 103 is accomplished via a set of tools developed for the Electronic Digital Content Store(s) 103 as part of the Secure Digital **Content** Electronic **Distribution** System 100.

These tools are used by the Electronic Digital Content Store(s) 103 to:

* acquire the Metadata SC(s) 620 packaged by the Content...the main variant between the broadcast based service offering and the point-to-point interactive web service type offering.

B. Point-to-Point Electronic Digital **Content Distribution** Service

Point-to-Point primarily means a one-to-one interactive service between the Electronic Digital Content Store(s) 103 and the End-User Device... ...is a block diagram illustrating the major tools, components and processes of an Electronic Digital Content Store(s) 103.

1. Integration Requirements

The Secure Digital **Content** Electronic **Distribution** System 100 not only creates new online businesses but provides a method for existing businesses to integrate the sale of downloadable electronic Content 113 to... ...batch driven and can be largely automated and is executed only to integrate new Content 113 into the site.

The tools for the Secure Digital **Content** Electronic **Distribution** have been designed to allow integration of sale of electronic downloadable Content 113 into typical implementations of web based Electronic Digital Content Store(s) 103... ...establishes customer loyalty with its customers and continues to offer its own incentives and market its products as it does today. In the Secure Digital **Content** Electronic **Distribution** System 100, it would simply need to indicate which products in its inventory are also available for electronic download and allow its customers to select... ...all electronic downloads. It simply passes the required information and all processing from that point on is handled by the toolset for the Secure Digital **Content** Electronic **Distribution** System 100. In another embodiment, other methods of transaction handling are also possible using tools for the Secure Digital **Content** Electronic **Distribution** System 100 to handle the financial settlement should the Electronic Digital Content Store(s) 103 wish to sell downloadable merchandise only or to segregate the...to retain a cross reference of the Content 113 being offered to this Product ID to properly interface with the tools for the Secure Digital **Content** Electronic **Distribution** System 100. Providing this information here, allows the Electronic Digital Content Store(s) 103 to integrate this product or Content 113 into its inventory and...only used by the Electronic Digital Content Store(s) 103 as input to his web service database is removed from the Metadata SC(s) 620. **Rights management** information provided by the Content Provider(s) 101, such as watermarking instructions, encrypted Symmetric Keys 623, and Usage Conditions 517 defining the permitted uses of...new Content 113 has been placed in the Content Promotions Web Site 156.

None of these notifications are a required step in the Secure Digital **Content** Electronic **Distribution** System flows 100 but are provided as options to allow the Electronic Digital Content Store(s) 103 the opportunity to close its records on the... ...is an optional process which is available to help the Electronic Digital Content Store(s) 103 feel comfortable with the accounting for the Secure Digital **Content** Electronic **Distribution** System 100.

In another embodiment, this tool can be updated to provide electronic funds transfers for automated periodic payments to the Content Provider(s) 101... ...payments upon reception of an electronic bill from the ClearingHouse(s) 105 after reconciling the bill against the Transaction Log 178.

C. Broadcast Electronic Digital **Content Distribution** Service

Broadcast primarily refers to a one to many transmission method where there is no personal interaction between the End-User Device(s) 109 and...Content 113 as well as prepare SC(s) is also used by a satellite based Electronic Digital Content Store(s) 103 to manage and prepare **Content** 113 for **distribution** on a broadcast infrastructure. The SC(s) distributed over a Web service are the same as those distributed over a broadcast service.

1. Multi-Tier Digital TV Embodiment

Turning now to FIG. 18, shown is a high level logical diagram of an alternate embodiment of electronic **distribution** of digital **content** using broadcast infrastructure, according to the present invention. In this embodiment, the Content Provider(s) 101, as previously described above in FIG. 6, provide Metadata... ...through a back channel such as a telephone line.

FIG. 19 is a detailed block diagram of FIG. 18, illustrating an alternate embodiment of electronic **distribution** of digital **content** using broadcast infrastructure , according to the present invention. The Broadcast Centre(s) 1802 receive the Offer SC(s) 641. The Carousel Builder & Broadcaster 1902 creates...the receiver.

2. Web broadcasting Over Separate Channels Embodiment

FIG. 27 is a detailed block diagram of FIG. 18, illustrating an alternate embodiment of electronic **distribution** of digital **content** using separate channels in a web broadcasting service, according to the present invention. This exemplary architecture overview in FIG. 27 is used to illustrate a...or play the Content 113 desired.

And as previously described for the "online" or "connected" version of the current delivery system, the necessary steps of **updating** usage conditions and **rights** associated with the Content can be monitored through the Clearing House(s) 105.

X. END-USER DEVICE(S) 109

The applications in the End-User Device(s) 109 for the Secure Digital **Content** Electronic **Distribution** System 100 perform two main functions: first the SC(s) processing and copy control; and second playback of encrypted Content 113. Whether the End-User... ...to the downloadable objects, the End-User(s) may have a combination of physical and electronic downloadable merchandise in his shopping cart. The Secure Digital **Content** Electronic **Distribution** End-User Device(s) 109 are not involved until after the End-User(s) checks out and submits his final purchase authorisation to the Electronic...of times. Until such time as the copy control standards are more stable, alternative methods of copy control have been provided in the Secure Digital **Content** Electronic **Distribution** System 100 so that it does not rely on the copy control watermark in order to provide **rights management** in the consumer device. Storage and p lay/record usage conditions security is implemented utilising encrypted DC Library Collections 196 that are tied to the...algorithm. Thus use of widely accepted and proven industry standard algorithms can be used thus further enhancing Digital Content Industry acceptance of the Secure Digital **Content** Electronic **Distribution** System 100.

The second purpose of this Decryption and Re-Encryption 194 process is to remove the requirement that the original master encryption Key 623... ...to encrypt the Content 113 is used for any associated metadata needing to be encrypted.

D. The Player Application 195

1. Overview

The Secure Digital **Content** Electronic **Distribution** Player Application 195 (referred to here as the Player Application 195) is analogous to both a CD, DVD or other Digital Content player and to...as handle requests for information about the stored songs.

6. Inter-application Communication Components 1508

These components are used for coordination between the Secure Digital **Content** Electronic **Distribution** Player and other applications (e.g., Browser, helper-app and/or plug-in, etc) that may invoke the Player Application 195, or that the Player...by the Player Application 195. A typical audio enthusiast has a library of CDS holding songs. All of these are available within the Secure Digital **Content** Electronic **Distribution** System 100. The set of songs that have been purchased from Electronic Digital Content Store(s) 103 are stored within a Digital Content Library 196...

10/K/5 (Item 5 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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Language

Fulltext Availability	**Available Text**	**Language**	**Update**	**Word Count**
Total Word Count (Document A)				
Total Word Count (Document B)				
Total Word Count (All Documents)				

Specification: ...The invention disclosed broadly relates to the field of electronic commerce and more particularly to a system and related tools for the secure delivery and **rights management** of digital assets, such as print media, films, games, and music over global communications networks such as the Internet and the World Wide Web. Description... ...However, in the case of electronic distribution, the tangible medium is no longer needed. The cost of the tangible medium is not a factor because **content** is **distributed** electronically. A second barrier, is the format of the content itself i.e. is the content stored in an analog format versus a digital format... ...of copies can be as clear and crisp as the original. The aggregate effect of perfect digital copies combined with the very low cost to **distribute content** electronically and to **distribute content** widely over the Internet makes it relatively easy to pirate and distribute unauthorized copies. With a couple of keystrokes, a pirate can send hundreds or even of thousands of perfect copies of

digital content over the Internet. Therefore a need exists to ensure the protection and security of digital assets **distributed** electronically.

Providers of digital **content** desire to establish a secure, global **distribution** system for digital **content** that protects the rights of content owners. The problems with establishing a digital **content distribution** system includes developing systems for digital **content** electronic **distribution**, **rights management**, and asset protection. Digital **content** that is **distributed** electronically includes **content** such as print media, films, games, programs, television, multimedia, and music.

The deployment of an electronic **distribution** system provides the digital **content** providers the ability to achieve fast settlement of payment through immediate sales reporting and electronic reconciliation as well as gain secondary sources of revenue through redistribution of content. Since the electronic digital **content distribution** system is not affected by physical inventory outages or returns, the digital content providers and retailers may realize reduced costs and improved margins. Digital content... ...immediate feedback on electronic marketing programs and promotions. In order to meet these goals, a need exists for digital content providers to use an electronic **distribution** model to make digital **content** available to a wide range of users and businesses while ensuring protection and metering of digital assets.

Other commercially available electronic **distribution** systems for digital **content**, such as real audio, A2B from AT&T, Liquid Audio Pro from Liquid Audio Pro Corp., City Music Network from Audio Soft and others offer transmission of digital data over secured and unsecured electronic networks. The use of secured electronic networks greatly reduces the requirement of digital **content** providers of **distributing** digital to a wide audience. The use of unsecured networks such as the Internet and Web allows the digital content to arrive to an end... ...user's machine, the digital content is readily available to the end-user for unauthorized re-distribution. Therefore a need exists for a secure digital **content** electronic **distribution** system that provides protection of digital assets and ensures that the Content Provider(s)' rights are protected even after the digital content is delivered to consumers and businesses. A need thus exists for **rights management** to allow for secure delivery, **licensing** authorization, and control of the usage of digital assets.

Another reason owners of digital content have been slow to embrace electronic distribution is their desire to maintain and foster existing channels of **distribution**. Most **content** owners sell through retailers. In the music market these U.S. retailers include Tower Records, Peaches, Blockbuster, Circuit City and others. Many of these retailers... ...of electronic content such as pictures, games, music, programs and videos a way to differentiate themselves from each other and the content owners when selling **music** through electronic **distribution**.

Content owners prepare their digital **content** for electronic **distribution** through **distribution** sites such as electronic stores. Electronic stores on the Internet, or through

other online services, want to differentiate themselves from each other by their product... ...provide a solution to these requirements.

Still, another reason owners of digital content have been slow to embrace electronic distribution is the difficulty in preparing **content** for electronic **distribution**. Today, many providers of **content** have thousands or even tens of thousands of titles in their portfolio. In a music example, it is not unusual for a content owner to... ...for musical sound tracks to movies and other collections or compilations. As more content is offered digitally, the need to re-mix and encode the **content** for electronic **distribution** grows. Many times providers need to use old recording formats as guides to select the correct master sound recordings and have these sound recordings reprocessed... ...exists to provide content providers a method to automatically retrieve associated data and master recordings for content such as audio.

Content owners prepare their digital **content** for electronic **distribution** through a process known as encoding. Encoding involves taking the content, digitizing it, if the content is presented in an analog format, and compressing it... ...progress of the encoding process. Accordingly, a need exists to overcome these problems.

Still another reason digital content providers have been slow to adopt electronic **distribution** for their **content** is lack of standards for creating digital players on end-user devices for electronically delivered content. Content providers, electronic stores, or others in the electronic... ...library of digital content without allowing the end user to have access to the content for uses other than what was purchased.

Still another problem **content** owners face with the **distribution** of digital **content** is where the purchase transaction contains multiple copies of an identical piece of content. For example, suppose a customer purchases a song or movie with... ...system for tracking usage of content data. One embodiment of the present invention provides a system for tracking usage of digital content on user devices. **Content** sites for **distributing** digital **content** over a computer readable medium to users. The content sites associate unique content identifier with the content associated. Electronic stores coupled to a network sell...of example only, with reference to the accompanying drawings in which:

FIG. 1 is a block diagram illustrating an over view of a Secure Digital **Content** Electronic **Distribution** System;

FIG. 2 is a block diagram illustrating an example Secure Container (SC) and the associated graphical representations;

FIG. 3 is a block diagram illustrating... ...overview of the de-encryption process for a Secure Container (SC);

FIG. 5 is a block diagram illustrating an overview of the layers for the **Rights Management** Architecture of the Secure Digital **Content Distribution** System of FIG. 1;

FIG. 6 is a block diagram illustrating an overview of the **Content Distribution** and Licensing Control as it applies to the License Control Layer of FIG. 5;

FIG. 7 is an illustration of an example user interface for... ...locating different sections in this embodiment.

The invention as claimed is particularly described in X.D.8 with reference to figure 18.

I. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM

A. System Overview

1. **Rights Management**

2. Metering

3. Open Architecture

B. System Functional Elements

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2. Electronic Digital Content Store(s)

3. Intermediate Market Partners

4. Clearinghouse(s)

5. End-User Device(s)

6. Transmission Infrastructures

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B. Public Key Algorithms

C. Digital Signature

D. Digital Certificates

E. Guide To The SC(s) Graphical Representation

B. **Rights Management** Processing

C. Country Specific Parameters

D. Audit Logs and Tracking

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VIII. CONTENT PROVIDER

A... ...Dispersement Tool

H. Content Promotions Web Site

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1. Content Hosting Sites

2. Content Hosting Site(s) 111 provided by the Secure Digital

Content Electronic **Distribution** System

IX. ELECTRONIC DIGITAL **CONTENT** STORE(S)

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2. Content Acquisition Tool

3. Transaction Processing Module

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5. Account Reconciliation Tool

C. Broadcast Electronic Digital **Content Distribution** Service

X. END-USER DEVICE(S)

A. Overview

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C. Secure Container Processor

D. The Player Application

1. Overview

2. End-User Interface... ...Components

5. Data Management 1502 and Library Access Components

6. Inter-application Communication Components

7. Other Miscellaneous Components

8. The Generic Player

I. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM

A. System Overview

The Secure Digital **Content** Electronic **Distribution** System is a technical platform that encompasses the technology, specifications, tools, and software needed for the secure delivery and **rights management** of Digital Content and digital content-related content to an end-user, client device. The End-User Device(s) include PCS, set top boxes (IRDs... ...refers to information and data stored in a digital format including: pictures, movies, videos, music, programs, multimedia and games.

The technical platform specifies how Digital **Content** is prepared, securely **distributed** through point-to-point and broadcast infrastructures (such as cable, Internet, satellite, and wireless) licensed to End-User Device(s), and protected against unauthorized copying... ...of various technologies such as watermarking, compression/encoding, encryption, and other security algorithms as they evolve over time.

The base components of the Secure Digital **Content** Electronic **Distribution** System are: (1) **rights management** for the protection of ownership **rights** of the content proprietor; (2) transaction metering for immediate and accurate compensation; and (3) an open and well-documented architecture that enables Content Provider(s) to prepare content and permit its secure delivery over multiple network infrastructures for playback on any standard compliant player.

1. **Rights Management**

Rights management in the Secure Digital **Content** Electronic **Distribution** System is implemented through a set of functions distributed among the operating components of the system. Its primary functions include: licensing authorization and control so... ...license, such as permitted number of copies, number of plays, and the time interval or term the license may be valid. A secondary function of **rights management** is to enable a means to identify the origin of unauthorized copies of content to combat piracy.

Licensing authorization and control are implemented through the... ...by enabling intermediate or End-User(s) to unlock content after verification of a successful completion of a licensing transaction. Secure Containers are used to **distribute** encrypted **content** and information among the system components. A SC is a cryptographic carrier of information or content that uses encryption, digital signatures, and digital certificates to... ...modification of electronic information and content. It also allows for the verification of the authenticity and integrity of the Digital Content. The advantage of these **rights management** functions is that the electronic Digital **Content distribution** infrastructure does not have to be secure or trusted. Therefore allowing transmission over network infrastructures such as the Web and Internet. This is due to... ...content resides or where it comes from. This information may be used to combat illegal use of the Content.

2. Metering

As part of its **rights management** functions, the Clearinghouse(s) keeps a record of all transactions where a key exchange is cleared through the Clearinghouse(s). This record allows for the... ...retailers, and others, on an immediate or periodic basis to facilitate electronic reconciliation of transaction payments and other uses.

3. Open Architecture

The Secure Digital **Content** Electronic **Distribution** System (System) is an open architecture with published specifications and interfaces to facilitate broad implementation and acceptance of the System in the market place while... ...to evolve over time as various technologies, transmission infrastructures, and devices are delivered to the marketplace.

The architecture is open regarding the nature of the **Content** and its format. **Distribution** of audio, programs, **multimedia**, video, or other types of Content is supported by the architecture. The Content could be in a native format , such as linear PCM for digital... ...evolve. This flexibility allows Content Provider(s) to pick and evolve the technologies they use for data compression, encryption, and formatting within the Secure Digital **Content** Electronic **Distribution** System.

The architecture is also open to different distribution networks and **distribution** models. The architecture supports **content distribution** over low-speed Internet connections or high-speed satellite and cable networks and can be used with point-to-point or broadcast models. In addition... ...compliant player devices.

B. System Functional Elements

Turning now to FIG. 1, there is shown a block diagram illustrating an overview of a Secure Digital **Content** Electronic **Distribution** System 100 according to the present invention. The Secure Digital **Content** Electronic **Distribution** System 100 encompasses several business elements that comprise an end-to-end solution, including: Content Provider(s) 101 or the proprietors of the Digital Content... ...Content Hosting Site 111, Transmission Infrastructures 107, and End-User Device(s) 109. Each of these business elements use various components of the Secure Digital **Content** Electronic **Distribution** System 100. A high level description of these business elements and system components, as they pertain specifically to electronic **Content** 113 **distribution**, follows.

1. **Content** Provider(s) 101

Content Provider(s) 101 or content proprietor(s) are owners of original Content 113 and/or distributors authorized to package independent **Content** 113 for further **distribution**. **Content** Provider(s) 101 may exploit their rights directly or license Content 113 to the Electronic Digital Content Store(s) 103, or Intermediate Market Partners (not... ...101 include Sony, Time-Warner, MTV, IBM, Microsoft, Turner, Fox and others.

Content Provider(s) 101 use tools provided as part of the Secure Digital **Content** Electronic **Distribution** System 100 in order to prepare their Content 113 and related data for distribution. A Work Flow Manager Tool 154 schedules Content 113 to be... ...are packed in SCs (described below) by the SC Packer Tool and stored in a content hosting site and/or promotional web site for electronic **distribution**. The **content** hosting site can reside at the Content Provider(s) 101 or in multiple locations, including Electronic Digital Content Store(s) 103 and Intermediate Market Partners... ...are Web sites that provide electronic downloads of software.

Within their services, Electronic Digital Content Store(s) 103 implement certain functions of the Secure Digital **Content** Electronic **Distribution** System 100. Electronic Digital **Content** Store(s) 103 aggregate information from the Content Provider(s) 101, pack content and metadata in additional SCs, and deliver those SCs to consumers or businesses as part of a service or application. Electronic Digital Content Store(s) 103 use tools provided by the Secure Digital **Content** Electronic **Distribution** System 100 to assist with: metadata extraction, **secondary** usage conditions, SC packaging, and tracking of electronic content transactions. The secondary usage conditions data can include retail business offers such as Content 113 purchase... ...Electronic Digital Content Store(s) may elect to host the SCs containing the Digital Content at its local site and/or utilize the hosting and **distribution** facilities of another **Content** hosting site.

The Electronic Digital Content Store(s) can provide customer service for any questions or problems that an End-User(s) may have using the Secure Digital **Content** Electronic **Distribution** System 100, or the Electronic Digital Content Store(s) 103 may contract their customer service support to the Clearinghouse(s) 105.

3. Intermediate Market Partners (not shown)

In an alternate embodiment, the Secure Digital **Content** Electronic **Distribution** System 100 can be used to provide Content 113 securely to other businesses called Intermediate Market Partners. These partners may include digital content-related companies offering a non-electronic service, such as televisions stations or video clubs, radio stations or record clubs, that **distribute Content** 113. These Partners may also include other trusted parties who handle material as part of making or marketing sound recordings, such as record studios, replicators... ...transactions such as refunds, transmission failures, and purchase disputes. The Clearinghouse(s) 105 can be operated as an independent entity, providing a trusted custodian for **rights management** and metering. It provides billing and settlement as required. Examples of electronic Clearinghouse(s) include Secure-Bank.com and Secure Electronic Transaction (SET) from Visa... ...End-User Device(s) 109 can be any player device that contains an End-User Player Application 195 (described later) compliant with the Secure Digital **Content** Electronic **Distribution** System 100 specifications. These devices may include PCS, set top boxes (IRDs), and Internet appliances. The End-User Player Application 195 could be implemented in... ...or consumer electronics hardware. In addition to performing play, record, and library management functions, the End-User Player Application 195 performs SC processing to enable **rights management** in the End-User Device(s) 109. The End-User Device(s) 109 manages the download and storage of the SCs containing the Digital Content... ...are used throughout this to mean through the use or running-on an End-User Device(s) 109.

6. Transmission Infrastructures 107

The Secure Digital **Content** Electronic **Distribution** System 100 is independent of the transmission network connecting the Electronic Digital Content Store(s) 103 and End-User Device(s) 109. It supports both... ...designed for a point-to-point distribution model can be adapted to support a broadcast distribution model as well.

C. System Uses

The Secure Digital **Content** Electronic **Distribution** System 100 enables the secure delivery of high-quality, electronic copies of Content 113 to End-User Device(s) 109, whether consumer or business, and to regulate and track usage of the Content 113.

The Secure Digital **Content** Electronic **Distribution** System 100 could be deployed in a variety of consumer and business-to-business services using both new and existing distribution channels. Each particular service could use a different financial model that can be enforced through the **rights management** features of the Secure Digital **Content** Electronic **Distribution** System 100. Models such as wholesale or retail purchase, pay-per-listen usage, subscription services, copy/no-copy restrictions, or redistribution could be implemented through the **rights management** of the Clearinghouse(s) 105 and the End-User Player Application 195 copy protection features.

The Secure Digital **Content** Electronic **Distribution** System 100 allows Electronic Digital Content Store(s) 103 and Intermediate Market Partners a great deal of flexibility in creating services that sell Content 113... ...and metered so that they can receive appropriate compensation for the licensing of Content 113.

II. CRYPTOGRAPHY CONCEPTS AND THEIR APPLICATION TO THE SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM

License Control in the Secure Digital **Content** Electronic **Distribution** System 100 is based on the use of cryptography. This section introduces basic cryptography technologies of the present invention. The use of public key encryption, symmetric key encryption, digital signatures, digital watermarks and digital certificates is known.

A. Symmetric Algorithms

In the Secure Digital **Content** Electronic **Distribution** System 100 the **Content** Provider(s) 101 encrypts the content using symmetric algorithms. They are called symmetric algorithms because the same key is used to encrypt and decrypt data. The data sender and the message recipient must share the key. The shared key is referred to here as the symmetric key. The Secure Digital **Content** Electronic **Distribution** System 100 architecture is independent of the specific symmetric algorithm selected for a particular implementation.

Common symmetric algorithms are DES, RC2 and RC4. Both DES... ...using Microsoft's CryptoAPI, running on a 120-MHZ, Pentium-based computer with Windows NT 4.0.

B. Public Key Algorithms

In the Secure Digital **Content** Electronic **Distribution** System 100, symmetric keys and other small data pieces are encrypted using public keys. Public key algorithms use two keys. The two keys are mathematically...6 kilobits/second with a 512-bit modulus and 7.4 kilobits/second with a 1024-bit modulus.

C. Digital Signature

In the Secure Digital **Content** Electronic **Distribution** System 100, the issuer of SC(s) protects the integrity of SC(s) by digitally signing it. In general, to create a digital signature of... ...the recovered one. If the message has not being altered during distribution, the calculated digest and recovered digest must be equal.

In the Secure Digital **Content** Electronic **Distribution** System 100, since SC(s) contain several data parts, a digest is calculated for each part and a summary digest is calculated for the concatenated... ...recipient of the message uses the entity's name from the certificate to decide whether or not to accept the message.

In the Secure Digital **Content** Electronic **Distribution** System 100, every SC(s), except those issued by the End-User Device(s) 109, includes the certificate of the creator of the SC(s... ...many End- User(s) do not bother to acquire a certificate or have certificates issued by non bona-fide Certification Authorities. In the Secure Digital **Content** Electronic **Distribution** System 100, the Clearinghouse(s) 105 has the option of issuing certificates to the Electronic Digital Content Store(s) 103. This allows the End-User Device(s) 109 to independently verify that the Electronic Digital Content Store(s) 103 have been authorized by the Secure Digital **Content** Electronic **Distribution** System 100.

E. Guide To The SC(s) Graphical Representation

This document uses a drawing to graphically represent SC(s) that shows encrypted parts, non... ...symmetric key in this case). Another encrypted object, in this example a Transaction ID encrypted object 205 is shown. And Usage Conditions 206 for content **licensing management** as described below. The SC(s) 200 comprises Usage Conditions 206, Transaction ID encrypted object 205, an Application ID encrypted object 207, and encrypted symmetric... ...created and decrypted in this process overview is a general SC(s). It does not represent any of the specific SC(s) types used for **rights management** in the Secure Digital **Content** Electronic **Distribution** System 100. The process consists of the steps described in FIG. 3 for encryption process.

Process Flow for Encryption Process of FIG. 3

Process Flow for Decryption Process of FIG. 4

III. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM FLOW

The Secure Electronic Digital **Content Distribution** System 100, consists of several components that are used by the different participants of the system. These participants include the Content Provider(s) 101, Electronic... ...via End-User Device(s) 109 and the Clearinghouse(s) 105. A high level system flow is used as an overview of the Secure Digital **Content** Electronic **Distribution** System 100. This flow outlined below tracks Content as it flows throughout the System 100. Additionally it outlines the steps used by the participants to... ...of the Digital Content e.g. music, video and program and electronic distribution systems broadcast.

The following process flow in illustrated in FIG. 1.

IV. **RIGHTS MANAGEMENT** ARCHITECTURE MODEL

A. Architecture Layer Functions

FIG. 5 is a block diagram of the **Rights Management** Architecture of the Secure Digital **Content** Electronic **Distribution** System 100. Architecturally, four layers represent the Secure Digital **Content** Electronic **Distribution** System 100: the License Control Layer

501, the Content Identification Layer 503, Content Usage Control Layer 505, and the Content Formatting Layer 507. The overall... ...required that the output from one layer satisfies format and semantics acceptable to the adjacent layer.

The License Control Layer 501 ensures that:

. the Digital **Content** is protected during **distribution** against illegal interception and tampering;

. the Content 113 originates from a rightful **content** owner and is **distributed** by a licensed distributor, e.g. Electronic Digital Content Store(s) 103;

. the Digital Content purchaser has a properly licensed application;

. the distributor is paid... ...native representation in the content owner's facilities into a form that is consistent with the service features and distribution means of the Secure Digital **Content** Electronic **Distribution** System 100. The conversion processing may include compression encoding and its associated preprocessing, such as frequency equalization and amplitude dynamic adjustment. For Content 113 which... ...113 also needs to be processed to achieve a format appropriate for playback or transfer to a portable device.

B. Function Partitioning and Flows

The **Rights Management** Architectural Model is shown in FIG. 5 and this illustrates the mapping of the architectural layers to the operating components making up the Secure Digital **Content** Electronic **Distribution** System 100 and the key functions in each layer.

1. Content Formatting Layer 507

The general functions associated with the Content Formatting Layer 507 are... ...113 and its transmission time. Any compression algorithm appropriate for the type of Content 113 and transmission medium can be used in the Secure Digital **Content** Electronic **Distribution** System 100. For **music**, MPEG 1/2/4, Dolby AC-2 and AC-3, Sony Adaptive Transform Coding (ATRAC), and low-bit rate algorithms are some of the typically... ...Transaction 541 and the License Authorization 543 are complete and authentic, that the Electronic Digital Content Store(s) 103 has authorization from the Secure Digital **Content** Electronic **Distribution** System 100 for the sale of electronic Content 113, and that the End-User(s) has a properly licensed application. Audit/Reporting 545 allows the generation of reports and the sharing of licensing transaction information with other authorized parties in the Secure Electronic Digital **Content Distribution** System 100

License control is implemented through SC Processing 533. SC(s) are used to **distribute** encrypted **Content** 113 and information among the system operation components (more about the SC(s) detailed structure sections below). A SC is cryptographic carrier of

information that... ...from reputable Certificate Authorities that are used to authenticate those components. The End-User Device(s) 109 are not required to have digital certificates.

C. **Content Distribution** and Licensing Control

FIG. 6 is a block diagram illustrating an overview of the **Content Distribution** and Licensing Control as it applies to the License Control Layer of FIG. 5. The figure depicts the case in which the Electronic Digital Content... ...each Content 113 object, the Metadata SC(s) 620 also carries the Store Usage Conditions 519 associated with the Content Usage Control Layer 505.

The **Content** Provider(s) 101 **distributes** the Metadata SC(s) 620 to one or more Electronic Digital Content Store(s) 103 (step 601) and the Content SC(s) 630 to one... ...End-User Device(s) 109, the Clearinghouse(s) 105 verifies:

1. that the Electronic Digital Content Store(s) 103 has authorization from the Secure Digital **Content** Electronic **Distribution** System 100 (exists in the Database 160 of the Clearinghouse(s) 105);

2. that the Order SC(s) 650 has not been altered;

3. that... ...was used to encrypt the encrypted part.

If the SC(s) does not contain any encrypted parts, then there is no Key Description part.

B. **Rights Management** Language Syntax and Semantics

The **Rights Management** Language consists of parameters that can be assigned values to define restrictions on the use of the Content 113 by an End-User(s) after...Key 623 bit string that was used to encrypt the part.

VII. CLEARINGHOUSE(S) 105

A. Overview

The Clearinghouse(s) 105 is responsible for the **rights management** functions of the Secure Digital **Content** Electronic **Distribution** System 100. Clearinghouse(s) 105 functions include enablement of Electronic Digital Content Store(s) 103, verification of rights to Content 113, integrity and authenticity validation of the buying transaction and related information, **distribution** of **Content** encryption keys or Symmetric Keys 623 to End-User Device(s) 109, tracking the distribution of those keys, and reporting of transaction summaries to Electronic... ...Content Store(s) Embodiment

An Electronic Digital Content Store(s) 103 that wants to participate as a seller of Content 113 in the Secure Digital **Content** Electronic **Distribution** System 100 makes a request

to one or more of the Digital Content Provider(s) 101 that provide Content 113 to the Secure Digital **Content** Electronic **Distribution** System 100. There is no definitive process for making the request so long as the two parties come to an agreement. After the digital content... ...s) 105 is contacted, usually via E-mail, with a request that the Electronic Digital Content Store(s) 103 be added to the Secure Digital **Content** Electronic **Distribution** System 100. The digital **content** label provides the name of the Electronic Digital Content Store(s) 103 and any other information that may be...End-User Device(s) 109 verifies that the Electronic Digital Content Store(s) 103 is a valid distributor of Content 113 on the Secure Digital **Content** Electronic **Distribution** System 100 by **first** checking the digital certificate revocation list and then using the Public Key 621 of the Clearinghouse(s) 105 to verify the information in the digital... ...660 it determines whether a new revocation list is included and if so, the local revocation list on the End-User Device(s) 109 is **updated**.

B. **Rights Management** Processing

Order SC(s) Analysis

The Clearinghouse(s) 105 receives an Order SC(s) 650 from an End-User(s) after the End-User(s... ...Transaction and Offer SC(s) 641 digital signatures also indirectly verifies that the Electronic Digital Content Store(s) 103 is authorized by the Secure Digital **Content** Electronic **Distribution** System 100. This is based on the fact that the Clearinghouse(s) 105 is the issuer of the certificates. Alternately, the Clearinghouse(s) 105 would... ...SC(s) 660 to the End-User Device(s) 109. The Electronic Digital Content Store(s) 103 is also expected to participate in managing the **distribution** of **Content** 113 to various countries by performing the same checks as the Clearinghouse(s) 105. The Clearinghouse(s) 105 does whatever checking that it can in... ...Content 113 purchase transactions and report request transactions. The information can be used for a variety of purposes such as audits of the Secure Digital **Content** Electronic **Distribution** System 100, generation of reports, and data mining.

The Clearinghouse(s) 105 also maintains account balances in Billing Subsystem 182 for the Electronic Digital Content... ...Store(s) 103 so that the Electronic Digital Content Store(s) 103 can charge the End-User(s)' credit card.

G. Retransmissions

The Secure Digital **Content** Electronic **Distribution** System 100 provides the ability to handle retransmissions of Content 113. This is typically performed by a Customer Service Interface 184. Electronic Digital Content Store... ...the End-User(s) for the purchase of the Content 113.

VIII. CONTENT PROVIDER

A. Overview

The Content Provider(s) 101 in the Secure Digital **Content** Electronic **Distribution** System 100 is the digital content label or the entity who owns the rights to the Content 113. The role of the Content Provider(s) 101 is to prepare the **Content** 113 for **distribution** and make information about the Content 113 available to Electronic Digital Content Store(s) 103 or retailers of the downloadable electronic versions of the Content... ...that the Content 113 is secure when it leaves the Content Provider(s) 101 domain and never exposed or accessible by unauthorized parties. This allows **Content** 113 to be freely **distributed** throughout a non-secure network, such as the Internet, without fear of exposure to hackers or unauthorized parties.

The end goal of the tools for... ...Content 113 and information and calls the SC(s) Packer to pack into SC(s).

(Content Dispersement Tool (not shown) - Disperses SC(s) to designated **distribution** centers, such as **Content** Hosting Site(s) 111 and Electronic Digital Content Store(s) 103.

(Content Promotions Web Site 156 - stores Metadata SC(s) 620 and optionally additional promotional...the song file remain available until after Content Quality Control Process 810.

11. Encryption Process 811

The Encryption Process 811 calls the appropriate Secure Digital **Content** Electronic **Distribution Rights Management** function to encrypt each of the watermarked/encoded song files. This process has no dependencies other than completion of all other audio processing. Upon completion...of media, such as several audio CDS, can be queued up so as to enable the Automatic Metadata Acquisition Tool to create a series of **Content** 113 for electronic **distribution**. For example, all the **Content** 113 could be created from a series of CDS or even selected tracks from one or more CDS examined by the Content Provider(s) 101... ...design and layout of this site or can choose to use a turnkey web server solution provided as part of the toolkit for Secure Digital **Content** Electronic **Distribution** System 100. To implement their own design for this service, the Content Provider(s) 101 need only provide links to the Metadata SC(s) 620 for Electronic Digital Content Store(s) 103 who access their site. This is accomplished using the toolkit for the Secure Digital **Content** Electronic **Distribution** System 100. The selection process and what information is shown is the discretion of the Content Provider(s) 101.

Metadata SC(s) 620 received into... ...titles, such as CDS, movies and games every year, adding to the tens of thousands of content titles that are currently available. The Secure Digital **Content** Electronic **Distribution** System 100 is designed to support all of the content titles available in stores today.

The numbers of content titles that the Secure Digital **Content** Electronic **Distribution** System 100 may eventually download to customers on a daily basis is in the thousands or tens of thousands. For a large number of titles, this requires a large amount of bandwidth. The computer disk space and bandwidth needs call for a **distributed**, scalable

implementation with multiple **Content** Hosting Site(s) 111. The system also supports customers all over the world. This requires overseas sites to speed delivery to the global customers.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 is designed to allow the Content Provider(s) 101 to either host their own Content 113 or share a common facility or a set of facilities.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 consists of multiple Content Hosting Site(s) 111 that collectively contain all of the **Content** 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 and several **Secondary Content** Sites (not shown) that contain the current hot hits offered by the Content Provider(s) 101. The number of Content Hosting Site(s) 111 changes... ...times.

Should the Content Provider(s) 101 choose to host all of their Content 113 in their own system, they can act as a single **Content** Hosting Site 111 with or without **additional Secondary Content** Sites. This allows them to build their own scalable **distributed** system. In another embodiment, Electronic Digital Content Store(s) 103 can also act as Content Hosting Site(s) 111 for certain Content 113. This embodiment... ...or the download request may be redirected to another Content Hosting Site(s) 111.

2. Content Hosting Site(s) 111 provided by the Secure Digital **Content** Electronic **Distribution** System 100

For the Secure Digital **Content** Electronic **Distribution** System 100 the decision of which site should be used to download the Content 113 is made by the primary content site that received the... ...to make this decision:

(Are there secondary content sites that host the Content 113 requested? (The majority of Content 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 is only located at primary sites);

(Where is the End-User Device(s) 109 geographically located? (This information can be obtained from the... ...is allowed to download the Content 113.

Secondary Content Sites

The Secondary Content Sites (not shown) host the popular Content 113 of the Secure Digital **Content Distribution** System 100. These sites are geographically dispersed across the world and are located near Network Access Points (NAPS) to improve download times. These sites are... ...for Multiple Electronic Digital Content Store(s) 103

Electronic Digital Content Store(s) 103 are essentially the retailers. They are the entities who market the **Content** 113 to be **distributed** to the customer. For **distribution** of **Content** 113, this would include Digital Content Retailing Web Sites, Digital Content

Retail Stores, or any business who wishes to get involved in marketing electronic Content... ...Store(s) 103 is accomplished via a set of tools developed for the Electronic Digital Content Store(s) 103 as part of the Secure Digital **Content** Electronic **Distribution** System 100.

These tools are used by the Electronic Digital Content Store(s) 103 to:

(acquire the Metadata SC(s) 620 packaged by the Content... ...the main variant between the broadcast based service offering and the point-to-point interactive web service type offering.

B. Point-to-Point Electronic Digital **Content Distribution** Service

Point-to-Point primarily means a one-to-one interactive service between the Electronic Digital Content Store(s) 103 and the End-User Device... ...is a block diagram illustrating the major tools, components and processes of an Electronic Digital Content Store(s) 103.

1. Integration Requirements

The Secure Digital **Content** Electronic **Distribution** System 100 not only creates new online businesses but provides a method for existing businesses to integrate the sale of downloadable electronic Content 113 to... ...batch driven and can be largely automated and is executed only to integrate new Content 113 into the site.

The tools for the Secure Digital **Content** Electronic **Distribution** have been designed to allow integration of sale of electronic downloadable Content 113 into typical implementations of web based Electronic Digital Content Store(s) 103... ...establishes customer loyalty with its customers and continues to offer its own incentives and market its products as it does today. In the Secure Digital **Content** Electronic **Distribution** System 100, it would simply need to indicate which products in its inventory are also available for electronic download and allow its customers to select... ...all electronic downloads. It simply passes the required information and all processing from that point on is handled by the toolset for the Secure Digital **Content** Electronic **Distribution** System 100. In another embodiment, other methods of transaction handling are also possible using tools for the Secure Digital **Content** Electronic **Distribution** System 100 to handle the financial settlement should the Electronic Digital Content Store(s) 103 wish to sell downloadable merchandise only or to segregate the...to retain a cross reference of the Content 113 being offered to this Product ID to properly interface with the tools for the Secure Digital **Content** Electronic **Distribution** System 100. Providing this information here, allows the Electronic Digital Content Store(s) 103 to integrate this product or Content 113 into its inventory and... ...only used by the Electronic Digital Content Store(s) 103 as input to his web service database is removed from the Metadata SC(s) 620. **Rights management** information provided by the Content Provider(s) 101, such as watermarking instructions, encrypted Symmetric Keys 623, and Usage Conditions 517 defining the permitted uses of... ...new Content 113 has been placed in the Content Promotions Web Site 156.

None of these notifications are a required step in the Secure Digital **Content** Electronic **Distribution** System flows 100 but are provided as options to allow the Electronic Digital Content Store(s) 103 the opportunity to close its records on the... ...is an optional process which is available to help the Electronic Digital Content Store(s) 103 feel comfortable with the accounting for the Secure Digital **Content** Electronic **Distribution** System 100.

In another embodiment, this tool can be updated to provide electronic funds transfers for automated periodic payments to the Content Provider(s) 101... ...payments upon reception of an electronic bill from the Clearinghouse(s) 105 after reconciling the bill against the Transaction Log 178.

C. Broadcast Electronic Digital **Content Distribution** Service

Broadcast primarily refers to a one to many transmission method where there is no personal interaction between the End-User Device(s) 109 and... ...Content 113 as well as prepare SC(s) is also used by a satellite based Electronic Digital Content Store(s) 103 to manage and prepare **Content** 113 for **distribution** on a broadcast infrastructure. The SC(s) distributed over a Web service are the same as those distributed over a broadcast service.

X. END-USER DEVICE(S) 109

The applications in the End-User Device(s) 109 for the Secure Digital **Content** Electronic **Distribution** System 100 perform two main functions: first the SC(s) processing and copy control; and second playback of encrypted Content 113. Whether the End-User... ...to the downloadable objects, the End-User(s) may have a combination of physical and electronic downloadable merchandise in his shopping cart. The Secure Digital **Content** Electronic **Distribution** End-User Device(s) 109 are not involved until after the End-User(s) checks out and submits his final purchase authorization to the Electronic...of times. Until such time as the copy control standards are more stable, alternative methods of copy control have been provided in the Secure Digital **Content** Electronic **Distribution** System 100 so that it does not rely on the copy control watermark in order to provide **rights management** in the consumer device. Storage and p lay/record usage conditions security is implemented utilizing encrypted DC Library Collections 196 that are tied to the... ...algorithm. Thus use of widely accepted and proven industry standard algorithms can be used thus further enhancing Digital Content Industry acceptance of the Secure Digital **Content** Electronic **Distribution** System 100.

The second purpose of this Decryption and Re-Encryption 194 process is to remove the requirement that the original master encryption Key 623... ...to encrypt the Content 113 is used for any associated metadata needing to be encrypted.

D. The Player Application 195

1. Overview

The Secure Digital **Content** Electronic **Distribution** Player Application 195 (referred to here as the Player Application 195) is analogous to both a CD, DVD or other Digital Content player and to... ...as handle requests for information about the stored songs.

6. Inter-application Communication Components 1508

These components are used for coordination between the Secure Digital **Content** Electronic **Distribution** Player and other applications (e.g., Browser, helper-app and/or plug-in, etc) that may invoke the Player Application 195, or that the Player... ...by the Player Application 195. A typical audio enthusiast has a library of CDS holding songs. All of these are available within the Secure Digital **Content** Electronic **Distribution** System 100. The set of songs that have been purchased from Electronic Digital Content Store(s) 103 are stored within a Digital Content Library 196...

Specification: ...to have digital certificates. C. Content Distribution and Licensing Control

FIG. 6 is a block diagram illustrating an overview of the **Content Distribution** and Licensing Control as it applies to the License Control Layer of FIG. 5. The figure depicts the case in which... ...each Content 113 object, the Metadata SC(s) 620 also carries the Store Usage Conditions 519 associated with the Content Usage Control Layer 505.

The **Content** Provider(s) 101 **distributes** the Metadata SC(s) 620 to one or more Electronic Digital Content Store(s) 103 (step 601) and the Content SC(s) 630 to one... ...User Device(s) 109, the Clearinghouse(s) 105 verifies:

1. 1. that the Electronic Digital Content Store(s) 103 has authorization from the Secure Digital **Content** Electronic **Distribution** System 100 (exists in the Database 160 of the Clearinghouse(s) 105);

2. 2. that the Order SC(s) 650 has not been altered;

3... ...was used to encrypt the encrypted part.

If the SC(s) does not contain any encrypted parts, then there is no Key Description part.

B. **Rights Management** Language Syntax and Semantics

The **Rights Management** Language consists of parameters that can be assigned values to define restrictions on the use of the Content 113 by an End-User(s) after...Key 623 bit string that was used to encrypt the part.

VII. CLEARINGHOUSE(S) 105

A. Overview

The Clearinghouse(s) 105 is responsible for the **rights management** functions of the Secure Digital **Content** Electronic **Distribution** System 100. Clearinghouse(s) 105 functions include enablement of Electronic Digital Content Store(s) 103, verification of rights to Content 113, integrity and authenticity validation of the buying transaction and related information, **distribution** of **Content** encryption keys or Symmetric Keys 623 to End-User Device(s) 109, tracking the distribution of those keys, and reporting of transaction summaries to Electronic... ...Content Store(s) Embodiment

An Electronic Digital Content Store(s) 103 that wants to participate as a seller of Content 113 in the Secure Digital **Content** Electronic **Distribution** System 100 makes a request to one or more of the Digital Content Provider(s) 101 that provide Content 113 to the Secure Digital **Content** Electronic **Distribution** System 100. There is no definitive process for making the request so long as the two parties come to an agreement. After the digital content... ...s) 105 is contacted, usually via E-mail, with a request that the Electronic Digital Content Store(s) 103 be added to the Secure Digital **Content** Electronic **Distribution** System 100. The digital **content** label provides the name of the Electronic Digital Content Store(s) 103 and any other information that may be required for the Clearinghouse(s) 105...End-User Device(s) 109 verifies that the Electronic Digital Content Store(s) 103 is a valid distributor of Content 113 on the Secure Digital **Content** Electronic **Distribution** System 100 by **first** checking the digital certificate revocation list and then using the Public Key 621 of the Clearinghouse(s) 105 to verify the information in the digital... ...660 it determines whether a new revocation list is included and if so, the local revocation list on the End-User Device(s) 109 is **updated**.

B. **Rights Management** Processing

Order SC(s) Analysis

The Clearinghouse(s) 105 receives an Order SC(s) 650 from an End-User(s) after the End-User(s... ...Transaction and Offer SC(s) 641 digital signatures also indirectly verifies that the Electronic Digital Content Store(s) 103 is authorized by the Secure Digital **Content** Electronic **Distribution** System 100. This is based on the fact that the Clearinghouse(s) 105 is the issuer of the certificates. Alternately, the Clearinghouse(s) 105 would... ...SC(s) 660 to the End-User Device(s) 109. The Electronic Digital Content Store(s) 103 is also expected to participate in managing the **distribution** of **Content** 113 to various countries by performing thesame checks as the Clearinghouse(s) 105. The Clearinghouse(s) 105 does whatever checking that it can in case... ...Content 113 purchase transactions and report request transactions. The information can be used for a variety of purposes such as audits of the Secure Digital **Content** Electronic **Distribution** System 100, generation of reports, and data mining.

The Clearinghouse(s) 105 also maintains account balances in Billing Subsystem 182 for the Electronic Digital Content... ...Store(s) 103 so that the Electronic Digital Content Store(s) 103 can charge the End-User(s)' credit card.

G. Retransmissions

The Secure Digital **Content** Electronic **Distribution** System 100 provides the ability to handle retransmissions of Content 113. This is typically performed by a Customer Service Interface 184. Electronic Digital Content Store... ...the End-User(s) for the purchase of the Content 113.

VIII. CONTENT PROVIDER

A. Overview

The Content Provider(s) 101 in the Secure Digital **Content** Electronic **Distribution** System 100 is the digital content label or the entity who owns the rights to the Content 113. The role of the Content Provider(s) 101 is to prepare the **Content** 113 for **distribution** and make information about the Content 113 available to Electronic Digital Content Store(s) 103 or retailers of the downloadable electronic versions of the Content... ...that the Content 113 is secure when it leaves the Content Provider(s)' 101 domain and never exposed or accessible by unauthorized parties. This allows **Content** 113 to be freely **distributed** throughout a non-secure network, such as the Internet, without fear of exposure to hackers or unauthorized parties.

The end goal of the tools for... ...Content 113 and information and calls the SC(s) Packer to pack into SC(s).

. Content Dispersement Tool (not shown) - Disperses SC(s) to designated **distribution** centers, such as **Content** Hosting Site(s) 111 and Electronic Digital Content Store(s) 103.

. Content Promotions Web Site 156 - stores Metadata SC(s) 620 and optionally additional promotional...the song file remain available until after Content Quality Control Process 810.

11. Encryption Process 811

The Encryption Process 811 calls the appropriate Secure Digital **Content** Electronic **Distribution Rights Management** function to encrypt each of the watermarked/encoded song files. This process has no dependencies other than completion of all other audio processing. Upon completion...of media, such as several audio CDS, can be queued up so as to enable the Automatic Metadata Acquisition Tool to create a series of **Content** 113 for electronic **distribution**. For example, all the **Content** 113 could be created from a series of CDS or even selected tracks from one or more CDS examined by the Content Provider(s) 101... ...design and layout of this site or can choose to use a turnkey web server solution provided as part of the toolkit for Secure Digital **Content** Electronic **Distribution** System 100. To implement their own design for this service, the Content Provider(s) 101 need only provide links to the Metadata SC(s) 620 for Electronic Digital Content Store(s) 103 who access their site. This is accomplished using the toolkit for the Secure Digital **Content** Electronic **Distribution** System 100. The selection process and what information is shown is the discretion of the Content Provider(s) 101.

Metadata SC(s) 620 received into... ...titles, such as CDS, movies and games every year, adding to the tens of thousands of content titles that are currently available. The Secure Digital **Content** Electronic **Distribution** System 100 is designed to support all of the content titles available in stores today.

The numbers of content titles that the Secure Digital **Content** Electronic **Distribution** System 100 may eventually download to customers on a daily basis is in the thousands or tens of thousands. For a large number of titles, this requires a large amount of bandwidth. The computer disk space and bandwidth needs call(underscore)for a **distributed**, scalable implementation with multiple **Content** Hosting Site(s) 111. The system also supports customers all over the world. This requires overseas sites to speed delivery to the global customers.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 is designed to allow the Content Provider(s) 101 to either host their own Content 113 or share a common facility or a set of facilities.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 consists of multiple Content Hosting Site(s) 111 that collectively contain all of the **Content** 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 and several **Secondary Content** Sites (not shown) that contain the current hot hits offered by the Content Provider(s) 101. The number of Content Hosting Site(s) 111 changes... ...times.

Should the Content Provider(s) 101 choose to host all of their Content 113 in their own system, they can act as a single **Content** Hosting Site 111 with or without **additional Secondary Content** Sites. This allows them to build their own scalable **distributed** system. In another embodiment, Electronic Digital Content Store(s) 103 can also act as Content Hosting Site(s) 111 for certain Content 113. This embodiment... ...or the download request may be redirected to another Content Hosting Site(s) 111.

2. Content Hosting Site(s) 111 provided by the Secure Digital **Content** Electronic **Distribution** System 100

For the Secure Digital **Content** Electronic **Distribution** System 100 the decision of which site should be used to download the Content 113 is made by the primary content site that received the... ...to make this decision:

. Are there secondary content sites that host the Content 113 requested? (The majority of Content 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 is only located at primary sites);

. Where is the End-User Device(s) 109 geographically located? (This information can be obtained from the... ...is allowed to download the Content 113.

Secondary Content Sites

The Secondary Content Sites (not shown) host the popular Content 113 of the Secure Digital **Content Distribution** System 100. These sites are geographically dispersed across the world and are located near Network Access Points (NAPS) to improve download times. These sites are... ...for Multiple Electronic Digital Content Store(s) 103

Electronic Digital Content Store(s) 103 are essentially the retailers. They are the entities who market the **Content** 113 to be **distributed** to the customer. For **distribution** of **Content** 113, this would include Digital Content Retailing Web Sites, Digital Content Retail Stores, or any business who wishes to get involved in marketing electronic Content... ...Store(s) 103 is accomplished via a set of tools developed for the Electronic Digital Content Store(s) 103 as part of the Secure Digital **Content** Electronic **Distribution** System 100.

These tools are used by the Electronic Digital Content Store(s) 103 to:

. acquire the Metadata SC(s) 620 packaged by the Content... ...the main variant between the broadcast based service offering and the point-to-point interactive web service type offering.

B. Point-to-Point Electronic Digital **Content Distribution** Service

Point-to-Point primarily means a one-to-one interactive service between the Electronic Digital Content Store(s) 103 and the End-User Device... ...is a block diagram illustrating the major tools, components and processes of an Electronic Digital Content Store(s) 103.

1. Integration Requirements

The Secure Digital **Content** Electronic **Distribution** System 100 not only creates new online businesses but provides a method for existing businesses to integrate the sale of downloadable electronic Content 113 to... ...batch driven and can be largely automated and is executed only to integrate new Content 113 into the site.

The tools for the Secure Digital **Content** Electronic **Distribution** have been designed to allow integration of sale of electronic downloadable Content 113 into typical implementations of web based Electronic Digital Content Store(s) 103... ...establishes customer loyalty with its customers and continues to offer its own incentives and market its products as it does today. In the Secure Digital **Content** Electronic **Distribution** System 100, it would simply need to indicate which products in its inventory are also available for electronic download and allow its customers to select...all electronic downloads. It simply passes the required information and all processing from that point on is handled by the toolset for the Secure Digital **Content** Electronic **Distribution** System 100. In another embodiment, other methods of transaction handling are also possible using tools for the Secure Digital **Content** Electronic **Distribution** System 100 to handle the financial settlement should the Electronic Digital Content Store(s) 103 wish to sell downloadable merchandise only or to segregate the... ...to retain a cross reference of the Content 113 being offered to this Product ID to properly interface with the tools for

the Secure Digital **Content** Electronic **Distribution** System 100. Providing this information here, allows the Electronic Digital Content Store(s) 103 to integrate this product or Content 113 into its inventory and... ...only used by the Electronic Digital Content Store(s) 103 as input to his web service database is removed from the Metadata SC(s) 620. **Rights management** information provided by the Content Provider(s) 101, such as watermarking instructions, encrypted Symmetric Keys 623, and Usage Conditions 517 defining the permitted uses of... ...new Content 113 has been placed in the Content Promotions Web Site 156.

None of these notifications are a required step in the Secure Digital **Content** Electronic **Distribution** System flows 100 but are provided as options to allow the Electronic Digital Content Store(s) 103 the opportunity to close its records on the... ...is an optional process which is available to help the Electronic Digital Content Store(s) 103 feel comfortable with the accounting for the Secure Digital **Content** Electronic **Distribution** System 100.

In another embodiment, this tool can be updated to provide electronic funds transfers for automated periodic payments to the Content Provider(s) 101... ...payments upon reception of an electronic bill from the Clearinghouse(s) 105 after reconciling the bill against the Transaction Log 178.

C. Broadcast Electronic Digital **Content Distribution** Service

Broadcast primarily refers to a one to many transmission method where there is no personal interaction between the End-User Device(s) 109 and... ...Content 113 as well as prepare SC(s) is also used by a satellite based Electronic Digital Content Store(s) 103 to manage and prepare **Content** 113 for **distribution** on a broadcast infrastructure. The SC(s) distributed over a Web service are the same as those distributed over a broadcast service.

X. END-USER DEVICE(S) 109

The applications in the End-User Device(s) 109 for the Secure Digital **Content** Electronic **Distribution** System 100 perform two main functions: first the SC(s) processing and copy control; and second playback of encrypted Content 113. Whether the End-User... ...to the downloadable objects, the End-User(s) may have a combination of physical and electronic downloadable merchandise in his shopping cart. The Secure Digital **Content** Electronic **Distribution** End-User Device(s) 109 are not involved until after the End-User(s) checks out and submits his final purchase authorization to the Electronic...of times. Until such time as the copy control standards are more stable, alternative methods of copy control have been provided in the Secure Digital **Content** Electronic **Distribution** System 100 so that it does not rely on the copy control watermark in order to provide **rights management** in the consumer device. Storage and p lay/record usage conditions security is implemented utilizing encrypted DC Library Collections 196 that are tied to the... ...algorithm. Thus use of widely accepted and

proven industry standard algorithms can be used thus further enhancing Digital Content Industry acceptance of the Secure Digital **Content** Electronic **Distribution** System 100.

The second purpose of this Decryption and Re-Encryption 194 process is to remove the requirement that the original master encryption Key 623... ...to encrypt the Content 113 is used for any associated metadata needing to be encrypted.

D. The Player Application 195

1. Overview

The Secure Digital **Content** Electronic **Distribution** Player Application 195 (referred to here as the Player Application 195) is analogous to both a CD, DVD or other Digital Content player and to... ...as handle requests for information about the stored songs.

6. Inter-application Communication Components 1508

These components are used for coordination between the Secure Digital **Content** Electronic **Distribution** Player and other applications (e.g., Browser, helper-app and/or plug-in, etc) that may invoke the Player Application 195, or that the Player... ...by the Player Application 195. A typical audio enthusiast has a library of CDS holding songs. All of these are available within the Secure Digital **Content** Electronic **Distribution** System 100. The set of songs that have been purchased from Electronic Digital Content Store(s) 103 are stored within a Digital Content Library 196...

Claims: ...resistant environment to prevent unauthorized access thereto.

7. A system for tracking usage of digital content on user devices, said system comprising:

a plurality of **content** sites for **distributing** digital **content** over computer readable medium to users, wherein the content contains a unique content identifier associated therewith;

a plurality of electronic stores for granting licenses to...

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Country	Number	Kind	Date
Legal Status Type	**Pub. Date**	**Kind**	**Text**

Language

Fulltext Availability Available Text	Language	Update	Word Count
Total Word Count (Document A)			
Total Word Count (Document B)			
Total Word Count (All Documents)			

Specification: ...The invention disclosed broadly relates to the field of electronic commerce and more particularly to a system and related tools for the secure delivery and **rights management** of digital assets, such as print media, films, games, and music over computer readable medium such as CDS and DVDs and over global communications networks... ...However, in the case of electronic distribution, the tangible medium is no longer needed. The cost of the tangible medium is not a factor because **content** is **distributed** electronically. A second barrier, is the format of the content itself i.e. is the content stored in an analog format versus a digital format...of copies can be as clear and crisp as the original. The aggregate effect of perfect digital copies combined with the very low cost to **distribute content** electronically and to **distribute content** widely over the Internet makes it relatively easy to pirate and distribute unauthorised copies. With a couple of keystrokes, a pirate can send hundreds or even of thousands of perfect copies of digital content over the Internet. Therefore a need exists to ensure the protection and security of digital assets **distributed** electronically.

Providers of digital **content** desire to establish a secure, global **distribution** system for digital **content** that protects the rights of content owners. The problems with establishing a digital **content distribution** system includes developing systems for digital **content** electronic **distribution**, **rights management**, and asset protection. Digital **content** that is **distributed** electronically includes **content** such as print media, films, games, programs, television, multimedia, and music.

The deployment of an electronic **distribution** system provides the digital **content** providers the ability to achieve fast settlement of payment through immediate sales reporting and electronic reconciliation as well as gain secondary sources of revenue through redistribution of content. Since the electronic digital **content distribution** system is not affected by physical inventory outages or returns, the digital content providers and retailers may realise reduced costs and improved margins. Digital content... ...immediate feedback on electronic marketing programs and promotions. In order to meet these goals, a need exists for digital content providers to use an electronic **distribution** model to make digital **content** available to a wide range of users and businesses while ensuring protection and metering of digital assets.

Other commercially available electronic **distribution** systems for digital **content**, such as real audio, A2B from AT&T, Liquid Audio Pro from Liquid Audio Pro Corp., City Music Network from Audio Soft and others offer transmission of digital data over secured and unsecured electronic networks. The use of secured electronic networks greatly reduces the requirement of digital **content** providers of **distributing** digital to a wide audience. The use of unsecured networks such as the Internet and Web allows the

digital content to arrive to an end... ...user's machine, the digital content is readily available to the end-user for unauthorised re-distribution. Therefore a need exists for a secure digital **content** electronic **distribution** system that provides protection of digital assets and ensures that the Content Provider(s)' rights are protected even after the digital content is delivered to consumers and businesses. A need thus exists for **rights management** to allow for secure delivery, **licensing** authorisation, and control of the usage of digital assets.

Another reason owners of digital content have been slow to embrace electronic distribution is their desire to maintain and foster existing channels of **distribution**. Most **content** owners sell through retailers. In the music market these U.S. retailers include Tower Records, Peaches, Blockbuster, Circuit City and others. Many of these retailers... ...of electronic content such as pictures, games, music, programs and videos a way to differentiate themselves from each other and the content owners when selling **music** through electronic **distribution**.

Content owners prepare their digital **content** for electronic **distribution** through **distribution** sites such as electronic stores. Electronic stores on the Internet, or through other online services, want to differentiate themselves from each other by their product... ...provide a solution to these requirements.

Still, another reason owners of digital content have been slow to embrace electronic distribution is the difficulty in preparing **content** for electronic **distribution**. Today, many providers of **content** have thousands or even tens of thousands of titles in their portfolio. In a music example, it is not unusual for a content owner to... ...for musical sound tracks to movies and other collections or compilations. As more content is offered digitally, the need to re-mix and encode the **content** for electronic **distribution** grows. Many times providers need to use old recording formats as guides to select the correct master sound recordings and have these sound recordings reprocessed... ...exists to provide content providers a method to automatically retrieve associated data and master recordings for content such as audio.

Content owners prepare their digital **content** for electronic **distribution** through a process known as encoding. Encoding involves taking the content, digitising it, it the content is presented in an analog format, and compressing it... ...progress of the encoding process. Accordingly, a need exists to overcome these problems.

Still another reason digital content providers have been slow to adopt electronic **distribution** for their **content** is lack of standards for creating digital players on end-user devices for electronically delivered content. Content providers, electronic stores, or others in the electronic... ...content without allowing the end user to have access to the content for uses other than what was purchased.

Still, another problem is with digital **content** electronic **distribution** systems is the length of time it takes to download content over standard telephone and cable lines. It is not uncommon for music that is... ...secured mariner which has many of the advantages of

electronic distribution without the need for large bandwidth telecommunications connections, The providing of a solution for **distribution** of digital **content** both over telecommunications line and on computer readable may result in two disparate systems being deployed. A need exists for a system that provides the **distribution** of digital **content** either via a telecommunications line or via computer readable medium without having to duplicate the tools and components for: (1) **rights management** for the protection of ownership **rights** of the content proprietor; (2) transaction metering for immediate and accurate compensation; and (3) an open architecture.

Further information on the background of protecting digital... ...of example only, with reference to the accompanying drawings in which:

FIG. 1 is a block diagram illustrating an over view of a Secure Digital **Content** Electronic **Distribution** System;

FIG. 2 is a block diagram illustrating an example Secure Container (SC) and the associated graphical representations;

FIG. 3 is a block diagram illustrating... ...overview of the de-encryption process for a Secure Container (SC);

FIG. 5 is a block diagram illustrating an overview of the layers for the **Rights Management** Architecture of the Secure Digital **Content Distribution** System of FIG. 1;

FIG. 6 is a block diagram illustrating an overview of the **Content Distribution** and Licensing Control as it applies to the License Control Layer of FIG. 5;

FIG. 7 is an illustration of an example user interface for... ...additional information for the Automatic Metadata Acquisition Tool of FIG. 8;

FIG. 18 is a block diagram of an alternative embodiment of FIG. 10 to **distribute content** on a computer readable storage medium according to the present invention; and

FIG. 19 is a flow diagram of the alternative embodiment of FIG. 18... ...sections in this embodiment.

The invention as claimed is particularly described in X.A.2 with reference to figures 18 and 19.

I. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM

A. System Overview

1. **Rights Management**

2. Metering

3. Content Identification Layer

4. License Control Layer

C. **Content Distribution** and Licensing Control

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F... ...Format

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B. Bill of Materials (BOM) Part

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H. Content Promotions Web Site

I. Content Hosting

1. Content Hosting Sites

2. Content Hosting Site(s) 111 provided by the Secure Digital

Content Electronic **Distribution** System

IX. ELECTRONIC DIGITAL **CONTENT** STORE(S)

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B. Point-to-Point Electronic Digital **Content Distribution** Service

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2. Content Acquisition Tool

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C. Broadcast Electronic Digital **Content Distribution** Service

X. END-USER DEVICE(S)

A. Overview

1. Delivery Over Telecommunications Infrastructure

2. Delivery Over A Computer Readable Medium

B. Application Installation

C. Secure... ...Components

5. Data Management 1502 and Library Access Components

6. Inter-application Communication Components

7. Other Miscellaneous Components

8. The Generic Player

I. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM

A. System Overview

The Secure Digital **Content** Electronic **Distribution** System is a technical platform that encompasses the technology, specifications, tools, and software needed for the secure delivery and **rights management** of Digital Content and digital content-related content to an end-user, client device. The End-User Device(s) include PCS, set top boxes (IRDs... ...refers to information and data stored in a digital format including: pictures, movies, videos, music, programs, multimedia and games.

The technical platform specifies how Digital **Content** is prepared, securely **distributed** through point-to-point and broadcast infrastructures (such as cable, Internet, satellite, and wireless) licensed to End-User Device(s), and protected against unauthorised copying... ...of various technologies such as watermarking, compression/encoding, encryption, and other security algorithms as they evolve over time.

The base components of the Secure Digital **Content** Electronic **Distribution** System are: (1) **rights management** for the protection of ownership **rights** of the content proprietor; (2) transaction metering for immediate and accurate compensation; and (3) an open and well-documented architecture that enables Content Provider(s) to prepare content and permit its secure delivery over multiple network infrastructures for playback on any standard compliant player.

1. **Rights Management**

Rights management in the Secure Digital **Content** Electronic **Distribution** System is implemented through a set of functions distributed among the operating components of the system. Its primary functions include: licensing authorisation and control so... ...license, such as permitted number of copies, number of plays, and the time interval or term the license may be valid. A secondary function of **rights management** is to enable a means to identify the origin of unauthorised copies of content to combat piracy.

Licensing authorisation and control are implemented through the... ...by enabling intermediate or End-User(s) to unlock content after verification of a successful completion of a licensing transaction. Secure Containers are used to **distribute** encrypted **content** and information among the system components. A SC is a cryptographic carrier of information or content that uses encryption, digital signatures, and digital certificates to... ...modification of electronic information and content. It also allows for the verification of the authenticity and integrity of the Digital Content. The advantage of these **rights management** functions is that the electronic Digital **Content distribution** infrastructure does not have to be secure or trusted. Therefore allowing transmission over

network infrastructures such as the Web and Internet. This is due to... ...content resides or where it comes from. This information may be used to combat illegal use of the Content.

2. Metering

As part of its **rights management** functions, the Clearinghouse(s) keeps a record of all transactions where a key exchange is cleared through the Clearinghouse(s). This record allows for the... ...retailers, and others, on an immediate or periodic basis to facilitate electronic reconciliation of transaction payments and other uses.

3. Open Architecture

The Secure Digital **Content** Electronic **Distribution** System (System) is an open architecture with published specifications and interfaces to facilitate broad implementation and acceptance of the System in the market place while... ...to evolve over time as various technologies, transmission infrastructures, and devices are delivered to the marketplace.

The architecture is open regarding the nature of the **Content** and its format. **Distribution** of audio, programs, **multimedia**, video, or other types of Content ...evolve. This flexibility allows Content Provider(s) to pick and evolve the technologies they use for data compression, encryption, and formatting within the Secure Digital **Content** Electronic **Distribution** System.

The architecture is also open to different distribution networks and **distribution** models. The architecture supports **content distribution** over low-speed Internet connections or high-speed satellite and cable networks and can be used with point-to-point or broadcast models. In addition... ...compliant player devices.

B. System Functional Elements

Turning now to FIG. 1, there is shown a block diagram illustrating an overview of a Secure Digital **Content** Electronic **Distribution** System 100 according to the present invention. The Secure Digital **Content** Electronic **Distribution** System 100 encompasses several business elements that comprise an end-to-end solution, including: Content Provider(s) 101 or the proprietors of the Digital Content... ...Content Hosting Site 111, Transmission Infrastructures 107, and End-User Device(s) 109. Each of these business elements use various components of the Secure Digital **Content** Electronic **Distribution** System 100. A high level description of these business elements and system components, as they pertain specifically to electronic **Content** 113 **distribution**, follows.

1. **Content** Provider(s) 101

Content Provider(s) 101or content proprietor(s) are owners of original Content 113 and/or distributors authorised to package independent **Content** 113 for further **distribution**. **Content** Provider(s) 101 may exploit their rights directly or license Content

113 to the Electronic Digital Content Store(s) 103, or Intermediate Market Partners (not... ...101 include Sony, Time-Warner, MTV, IBM, Microsoft, Turner, Fox and others.

Content Provider(s) 101 use tools provided as part of the Secure Digital **Content** Electronic **Distribution** System 100 in order to prepare their Content 113 and related data for distribution. A Work Flow Manager Tool 154 schedules Content 113 to be... ...are packed in SCs (described below) by the SC Packer Tool and stored in a content hosting site and/or promotional web site for electronic **distribution**. The **content** hosting site can reside at the Content Provider(s) 101 or in multiple locations, including Electronic Digital Content Store(s) 103 and Intermediate Market Partners... ...are Web sites that provide electronic downloads of software.

Within their services, Electronic Digital Content Store(s) 103 implement certain functions of the Secure Digital **Content** Electronic **Distribution** System 100. Electronic Digital **Content** Store(s) 103 aggregate information from the Content Provider(s) 101, pack content and metadata in additional SCs, and deliver those SCs to consumers or businesses as part of a service or application. Electronic Digital Content Store(s) 103 use tools provided by the Secure Digital **Content** Electronic **Distribution** System 100 to assist with: metadata extraction, **secondary** usage conditions, SC packaging, and tracking of electronic content transactions. The secondary usage conditions data can include retail business offers such as Content 113 purchase... ...Electronic Digital Content Store(s) may elect to host the SCs containing the Digital Content at its local site and/or utilise the hosting and **distribution** facilities of another **Content** hosting site.

The Electronic Digital Content Store(s) can provide customer service for any questions or problems that an End-User(s) may have using the Secure Digital **Content** Electronic **Distribution** System 100, or the Electronic Digital Content Store(s) 103 may contract their customer service support to the Clearinghouse(s) 105.

3. Intermediate Market Partners (not shown)

In an alternate embodiment, the Secure Digital **Content** Electronic **Distribution** System 100 can be used to provide Content 113 securely to other businesses called Intermediate Market Partners. These partners may include digital content-related companies offering a non-electronic service, such as televisions stations or video clubs, radio stations or record clubs, that **distribute Content** 113. These Partners may also include other trusted parties who handle material as part of making or marketing sound recordings, such as record studios, replicators... ...transactions such as refunds, transmission failures, and purchase disputes. The Clearinghouse(s) 105 can be operated as an independent entity, providing a trusted custodian for **rights management** and metering. It provides billing and settlement as required. Examples of electronic Clearinghouse(s) include Secure-Bank.com and Secure Electronic Transaction (SET) from Visa... ...End-User Device(s) 109 can be any player device that contains an End-User Player Application 195 (described later) compliant with the Secure Digital **Content** Electronic **Distribution** System 100 specifications. These devices may include PCS, set top boxes (IRDs), and Internet appliances. The End-User Player Application 195 could be implemented in... ...or

consumer electronics hardware. In addition to performing play, record, and library management functions, the End-User Player Application 195 performs SC processing to enable **rights management** in the End-User Device(s) 109. The End-User Device(s) 109 manages the download and storage of the SCs containing the Digital Content... ...are used throughout this to mean through the use or running-on an End-User Device(s) 109.

6. Transmission Infrastructures 107

The Secure Digital **Content** Electronic **Distribution** System 100 is independent of the transmission network connecting the Electronic Digital Content Store(s) 103 and End-User Device(s) 109. It supports both... ...designed for a point-to-point distribution model can be adapted to support a broadcast distribution model as well.

C. System Uses

The Secure Digital **Content** Electronic **Distribution** System 100 enables the secure delivery of high-quality, electronic copies of Content 113 to End-User Device(s) 109, whether consumer or business, and to regulate and track usage of the Content 113.

The Secure Digital **Content** Electronic **Distribution** System 100 could be deployed in a variety of consumer and business-to-business services using both new and existing distribution channels. Each particular service could use a different financial model that can be enforced through the **rights management** features of the Secure Digital **Content** Electronic **Distribution** System 100. Models such as wholesale or retail purchase, pay-per-listen usage, subscription services, copy/no-copy restrictions, or redistribution could be implemented through the **rights management** of the Clearinghouse(s) 105 and the End-User Player Application 195 copy protection features.

The Secure Digital **Content** Electronic **Distribution** System 100 allows Electronic Digital Content Store(s) 103 and Intermediate Market Partners a great deal of flexibility in creating services that sell Content 113... ...and metered so that they can receive appropriate compensation for the licensing of Content 113.

II. CRYPTOGRAPHY CONCEPTS AND THEIR APPLICATION TO THE SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM

License Control in the Secure Digital **Content** Electronic **Distribution** System 100 is based on the use of cryptography. This section introduces basic cryptography technologies of the present invention. The use of public key encryption, symmetric key encryption, digital signatures, digital watermarks and digital certificates is known.

A. Symmetric Algorithms

In the Secure Digital **Content** Electronic **Distribution** System 100 the **Content** Provider(s) 101 encrypts the content using symmetric algorithms. They are called symmetric algorithms because the same key is used to encrypt and decrypt data. The data

sender and the message recipient must share the key. The shared key is referred to here as the symmetric key. The Secure Digital **Content** Electronic **Distribution** System 100 architecture is independent of the specific symmetric algorithm selected for a particular implementation.

Common symmetric algorithms are DES, RC2 and RC4. Both DES... ...using Microsoft's CryptoAPI, running on a 120-MHZ, Pentium-based computer with Windows NT 4.0.

B. Public Key Algorithms

In the Secure Digital **Content** Electronic **Distribution** System 100, symmetric keys and other small data pieces are encrypted using public keys. Public key algorithms use two keys. The two keys are mathematically... ...6 kilobits/second with a 512-bit modulus and 7.4 kilobits/second with a 1024-bit modulus.

C. Digital Signature

In the Secure Digital **Content** Electronic **Distribution** System 100, the issuer of SC(S) protects the integrity of SC(s) by digitally signing it. In general, to create a digital signature of... ...the recovered one. If the message has not being altered during distribution, the calculated digest and recovered digest must be equal.

In the Secure Digital **Content** Electronic **Distribution** System 100, since SC(s) contain several data parts, a digest is calculated for each part and a summary digest is calculated for the concatenated... ...recipient of the message uses the entity's name from the certificate to decide whether or not to accept the message.

In the Secure Digital **Content** Electronic **Distribution** System 100, every SC(s), except those issued by the End-User Device(s) 109, includes the certificate of the creator of the SC(s... ...many End- User(s) do not bother to acquire a certificate or have certificates issued by non bona-fide Certification Authorities. In the Secure Digital **Content** Electronic **Distribution** System 100, the Clearinghouse(s) 105 has the option of issuing certificates to the Electronic Digital Content Store(s) 103. This allows the End-User Device(s) 109 to independently verify that the Electronic Digital Content Store(s) 103 have been authorised by the Secure Digital **Content** Electronic **Distribution** System 100.

E. Guide To The SC(s) Graphical Representation

This document uses a drawing to graphically represent SC(s) that shows encrypted parts, non... ...symmetric key in this case). Another encrypted object, in this example a Transaction ID encrypted object 205 is shown. And Usage Conditions 206 for content **licensing management** as described below. The SC(s) 200 comprises Usage Conditions 206, Transaction ID encrypted object 205, an Application ID encrypted object 207, and encrypted symmetric... ...created and decrypted in this process overview is a general SC(s). It does not represent any of the specific SC(s) types used for **rights management**

in the Secure Digital **Content** Electronic **Distribution** System 100. The process consists of the steps described in FIG. 3 for encryption process.

Process Flow for Encryption Process of FIG. 3

Process Flow for Decryption Process of FIG. 4

III. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM FLOW

The Secure Electronic Digital **Content Distribution** System 100, consists of several components that are used by the different participants of the system. These participants include the Content Provider(s) 101, Electronic... ...via End-User Device(s) 109 and the Clearinghouse(s) 105. A high level system flow is used as an overview of the Secure Digital **Content** Electronic **Distribution** System 100. This flow outlined below tracks Content as it flows throughout the System 100. Additionally it outlines the steps used by the participants to... ...of the Digital Content e.g. music, video and program and electronic distribution systems broadcast.

The following process flow in illustrated in FIG. 1.

IV. **RIGHTS MANAGEMENT** ARCHITECTURE MODEL

A. Architecture Layer Functions

FIG. 5 is a block diagram of the **Rights Management** Architecture of the Secure Digital **Content** Electronic **Distribution** System 100. Architecturally, four layers represent the Secure Digital **Content** Electronic **Distribution** System 100: the License Control Layer 501, the Content Identification Layer 503, Content Usage Control Layer 505, and the Content Formatting Layer 507. The overall... ...required that the output from one layer satisfies format and semantics acceptable to the adjacent layer.

The License Control Layer 501 ensures that:

* the Digital **Content** is protected during **distribution** against illegal interception and tampering;

* the Content 113 originates from a rightful **content** owner and is **distributed** by a licensed distributor, e.g. Electronic Digital Content Store(s) 103;

* the Digital Content purchaser has a properly licensed application;

* the distributor is paid... ...native representation in the content owner's facilities into a form that is consistent with the service features and distribution means of the Secure Digital **Content** Electronic **Distribution** System 100. The conversion processing may include compression encoding and its associated preprocessing, such as frequency

equalisation and amplitude dynamic adjustment. For Content 113 which... ...113 also needs to be processed to achieve a format appropriate for playback or transfer to a portable device.

B. Function Partitioning and Flows

The **Rights Management** Architectural Model is shown in FIG. 5 and this illustrates the mapping of the architectural layers to the operating components making up the Secure Digital **Content** Electronic **Distribution** System 100 and the key functions in each layer.

1. Content Formatting Layer 507

The general functions associated with the Content Formatting Layer 507 are... ...113 and its transmission time. Any compression algorithm appropriate for the type of Content 113 and transmission medium can be used in the Secure Digital **Content** Electronic **Distribution** System 100. For **music**, MPEG 1/2/4, Dolby AC-2 and AC-3, Sony Adaptive Transform Coding (ATRAC), and low-bit rate algorithms are some of the typically...Transaction 541 and the License Authorisation 543 are complete and authentic, that the Electronic Digital Content Store(s) 103 has authorisation from the Secure Digital **Content** Electronic **Distribution** System 100 for the sale of electronic Content 113, and that the End-User(s) has a properly licensed application. Audit/Reporting 545 allows the generation of reports and the sharing of licensing transaction information with other authorised parties in the Secure Electronic Digital **Content Distribution** System 100

License control is implemented through SC Processing 533. SC(s) are used to **distribute** encrypted **Content** 113 and information among the system operation components (more about the SC(s) detailed structure sections below). A SC is cryptographic carrier of information that... ...from reputable Certificate Authorities that are used to authenticate those components. The End-User Device(s) 109 are not required to have digital certificates.

C. **Content Distribution** and Licensing Control

FIG. 6 is a block diagram illustrating an overview of the **Content Distribution** and Licensing Control as it applies to the License Control Layer of FIG. 5. The figure depicts the case in which the Electronic Digital Content... ...each Content 113 object, the Metadata SC(s) 620 also carries the Store Usage Conditions 519 associated with the Content Usage Control Layer 505.

The **Content** Provider(s) 101 **distributes** the Metadata SC(s) 620 to one or more Electronic Digital Content Store(s) 103 (step 601) and the Content SC(s) 630 to one... ...End-User Device(s) 109, the Clearinghouse(s) 105 verifies:

1. that the Electronic Digital Content Store(s) 103 has authorisation from the Secure Digital **Content** Electronic **Distribution** System 100 (exists in the Database 160 of the Clearinghouse(s) 105);

2. that the Order SC(s) 650 has not been altered;

3. that... ...was used to encrypt the encrypted part.

If the SC(s) does not contain any encrypted parts, then there is no Key Description part.

B. **Rights Management** Language Syntax and Semantics

The **Rights Management** Language consists of parameters that can be assigned values to define restrictions on the use of the Content 113 by an End-User(s) after...Key 623 bit string that was used to encrypt the part.

VII. CLEARINGHOUSE(S) 105

A. Overview

The Clearinghouse(s) 105 is responsible for the **rights management** functions of the Secure Digital **Content** Electronic **Distribution** System 100. Clearinghouse(s) 105 functions include enablement of Electronic Digital Content Store(s) 103, verification of rights to Content 113, integrity and authenticity validation of the buying transaction and related information, **distribution** of **Content** encryption keys or Symmetric Keys 623 to End-User Device(s) 109, tracking the distribution of those keys, and reporting of transaction summaries to Electronic... ...Content Store(s) Embodiment

An Electronic Digital Content Store(s) 103 that wants to participate as a seller of Content 113 in the Secure Digital **Content** Electronic **Distribution** System 100 makes a request to one or more of the Digital Content Provider(s) 101 that provide Content 113 to the Secure Digital **Content** Electronic **Distribution** System 100. There is no definitive process for making the request so long as the two parties come to an agreement. After the digital content... ...s) 105 is contacted, usually via E-mail, with a request that the Electronic Digital Content Store(s) 103 be added to the Secure Digital **Content** Electronic **Distribution** System 100. The digital **content** label provides the name of the Electronic Digital Content Store(s) 103 and any other information that may be required for the Clearinghouse(s) 105... ...End-User Device(s) 109 verifies that the Electronic Digital Content Store(s) 103 is a valid distributor of Content 113 on the Secure Digital **Content** Electronic **Distribution** System 100 by **first** checking the digital certificate revocation list and then using the Public Key 621 of the Clearinghouse(s) 105 to verify the information in the digital... ...660 it determines whether a new revocation list is included and if so, the local revocation list on the End-User Device(s) 109 is **updated**.

B. **Rights Management** Processing

Order SC(s) Analysis

The Clearinghouse(s) 105 receives an Order SC(s) 650 from an End-User(s) after the End-User(s... ...Transaction and Offer SC(s) 641 digital signatures also indirectly verifies

that the Electronic Digital Content Store(s) 103 is authorised by the Secure Digital **Content** Electronic **Distribution** System 100. This is based on the fact that the Clearinghouse(s) 105 is the issuer of the certificates. Alternately, the Clearinghouse(s) 105 would... ...SC(s) 660 to the End-User Device(s) 109. The Electronic Digital Content Store(s) 103 is also expected to participate in managing the **distribution** of **Content** 113 to various countries by performing the same checks as the Clearinghouse(s) 105. The Clearinghouse(s) 105 does whatever checking that it can in... ...Content 113 purchase transactions and report request transactions. The information can be used for a variety of purposes such as audits of the Secure Digital **Content** Electronic **Distribution** System 100, generation of reports, and data mining.

The Clearinghouse(s) 105 also maintains account balances in Billing Subsystem 182 for the Electronic Digital Content...Store(s) 103 so that the Electronic Digital Content Store(s) 103 can charge the End-User(s)' credit card.

G. Retransmissions

The Secure Digital **Content** Electronic **Distribution** System 100 provides the ability to handle retransmissions of Content 113. This is typically performed by a Customer Service Interface 184. Electronic Digital Content Store... ...the End-User(s) for the purchase of the Content 113.

VIII. CONTENT PROVIDER

A. Overview

The Content Provider(s) 101 in the Secure Digital **Content** Electronic **Distribution** System 100 is the digital content label or the entity who owns the rights to the Content 113. The role of the Content Provider(s) 101 is to prepare the **Content** 113 for **distribution** and make information about the Content 113 available to Electronic Digital Content Store(s) 103 or retailers of the downloadable electronic versions of the Content... ...that the Content 113 is secure when it leaves the Content Provider(s)' 101 domain and never exposed or accessible by unauthorised parties. This allows **Content** 113 to be freely **distributed** throughout a non-secure network, such as the Internet, without fear of exposure to hackers or unauthorised parties.

The end goal of the tools for... ...Content 113 and information and calls the SC(s) Packer to pack into SC(s).

* Content Dispersement Tool (not shown) - Disperses SC(s) to designated **distribution** centres, such as **Content** Hosting Site(s) 111 and Electronic Digital Content Store(s) 103.

* Content Promotions Web Site 156 - stores Metadata SC(s) 620 and optionally additional promotional... ...the song file remain available until after Content Quality Control Process 810.

11. Encryption Process 811

The Encryption Process 811 calls the appropriate Secure Digital **Content** Electronic **Distribution Rights Management** function to encrypt each of the watermarked/encoded song files. This process has no dependencies other than completion of all other audio processing. Upon completion...of media, such as several audio CDS, can be queued up so as to enable the Automatic Metadata Acquisition Tool to create a series of **Content** 113 for electronic **distribution**. For example, all the **Content** 113 could be created from a series of CDS or even selected tracks from one or more CDS examined by the Content Provider(s) 101... ...design and layout of this site or can choose to use a turnkey web server solution provided as part of the toolkit for Secure Digital **Content** Electronic **Distribution** System 100. To implement their own design for this service, the Content Provider(s) 101 need only provide links to the Metadata SC(s) 620 for Electronic Digital Content Store(s) 103 who access their site. This is accomplished using the toolkit for the Secure Digital **Content** Electronic **Distribution** System 100. The selection process and what information is shown is the discretion of the Content Provider(s) 101.

Metadata SC(s) 620 received into... ...titles, such as CDS, movies and games every year, adding to the tens of thousands of content titles that are currently available. The Secure Digital **Content** Electronic **Distribution** System 100 is designed to support all of the content titles available in stores today.

The numbers of content titles that the Secure Digital **Content** Electronic **Distribution** System 100 may eventually download to customers on a daily basis is in the thousands or tens of thousands. For a large number of titles, this requires a large amount of bandwidth. The computer disk space and bandwidth needs call for a **distributed**, scalable implementation with multiple **Content** Hosting Site(s) 111. The system also supports customers all over the world. This requires overseas sites to speed delivery to the global customers.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 is designed to allow the Content Provider(s) 101 to either host their own Content 113 or share a common facility or a set of facilities.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 consists of multiple Content Hosting Site(s) 111 that collectively contain all of the **Content** 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 and several **Secondary Content** Sites (not shown) that contain the current hot hits offered by the Content Provider(s) 101. The number of Content Hosting Site(s) 111 changes... ...times.

Should the Content Provider(s) 101 choose to host all of their Content 113 in their own system, they can act as a single **Content** Hosting Site 111 with or without **additional Secondary Content** Sites. This allows them to build their own scalable **distributed** system. In another embodiment, Electronic Digital Content Store(s) 103 can also act as

Content Hosting Site(s) 111 for certain Content 113. This embodiment... ...or the download request may be redirected to another Content Hosting Site(s) 111.

2. Content Hosting Site(s) 111 provided by the Secure Digital **Content** Electronic **Distribution** System 100

For the Secure Digital **Content** Electronic **Distribution** System 100 the decision of which site should be used to download the Content 113 is made by the primary content site that received the... ...to make this decision:

* Are there secondary content sites that host the Content 113 requested? (The majority of Content 113 offered by the Secure Digital **Content** Electronic **Distribution** System 100 is only located at primary sites);

* Where is the End-User Device(s) 109 geographically located? (This information can be obtained from the... ...is allowed to download the Content 113.

Secondary Content Sites

The Secondary Content Sites (not shown) host the popular Content 113 of the Secure Digital **Content Distribution** System 100. These sites are geographically dispersed across the world and are located near Network Access Points (NAPS) to improve download times. These sites are... ...for Multiple Electronic Digital Content Store(s) 103

Electronic Digital Content Store(s) 103 are essentially the retailers. They are the entities who market the **Content** 113 to be **distributed** to the customer. For **distribution** of **Content** 113, this would include Digital Content Retailing Web Sites, Digital Content Retail Stores, or any business who wishes to get involved in...Store(s) 103 is accomplished via a set of tools developed for the Electronic Digital Content Store(s) 103 as part of the Secure Digital **Content** Electronic **Distribution** System 100. These tools are used by the Electronic Digital Content Store(s) 103 to:

* acquire the Metadata SC(s) 620 packaged by the Content... ...the main variant between the broadcast based service offering and the point-to-point interactive web service type offering.

B. Point-to-Point Electronic Digital **Content Distribution** Service

Point-to-Point primarily means a one-to-one interactive service between the Electronic Digital Content Store(s) 103 and the End-User Device... ...is a block diagram illustrating the major tools, components and processes of an Electronic Digital Content Store(s) 103.

1. Integration Requirements

The Secure Digital **Content** Electronic **Distribution** System 100 not only creates new online businesses but provides a method for existing businesses to integrate the sale of

downloadable electronic Content 113 to... ...batch driven and can be largely automated and is executed only to integrate new Content 113 into the site.

The tools for the Secure Digital **Content** Electronic **Distribution** have been designed to allow integration of sale of electronic downloadable Content 113 into typical implementations of web based Electronic Digital Content Store(s) 103... ...establishes customer loyalty with its customers and continues to offer its own incentives and market its products as it does today. In the Secure Digital **Content** Electronic **Distribution** System 100, it would simply need to indicate which products in its inventory are also available for electronic download and allow its customers to select... ...all electronic downloads. It simply passes the required information and all processing from that point on is handled by the toolset for the Secure Digital **Content** Electronic **Distribution** System 100. In another embodiment, other methods of transaction handling are also possible using tools for the Secure Digital **Content** Electronic **Distribution** System 100 to handle the financial settlement should the Electronic Digital Content Store(s) 103 wish to sell downloadable merchandise only or to segregate the... ...to retain a cross reference of the Content 113 being offered to this Product ID to properly interface with the tools for the Secure Digital **Content** Electronic **Distribution** System 100. Providing this information here, allows the Electronic Digital Content Store(s) 103 to integrate this product or Content 113 into its inventory and... ...only used by the Electronic Digital Content Store(s) 103 as input to his web service database is removed from the Metadata SC(s) 620. **Rights management** information provided by the Content Provider(s) 101, such as watermarking instructions, encrypted Symmetric Keys 623, and Usage Conditions 517 defining the permitted uses of... ...new Content 113 has been placed in the Content Promotions Web Site 156.

None of these notifications are a required step in the Secure Digital **Content** Electronic **Distribution** System flows 100 but are provided as options to allow the Electronic Digital Content Store(s) 103 the opportunity to close its records on the... ...is an optional process which is available to help the Electronic Digital Content Store(s) 103 feel comfortable with the accounting for the Secure Digital **Content** Electronic **Distribution** System 100.

In another embodiment, this tool can be updated to provide electronic funds transfers for automated periodic payments to the Content Provider(s) 101... ...payments upon reception of an electronic bill from the Clearinghouse(s) 105 after reconciling the bill against the Transaction Log 178.

C. Broadcast Electronic Digital **Content Distribution** Service

Broadcast primarily refers to a one to many transmission method where there is no personal interaction between the End-User Device(s) 109 and... ...Content 113 as well as prepare SC(s) is also used by a satellite based Electronic Digital Content Store(s) 103 to manage and prepare **Content** 113 for **distribution** on a broadcast infrastructure. The SC(s) distributed over a Web service are the same as those distributed over a broadcast service.

X. applications in the End-User Device(s) 109 for the Secure Digital **Content** Electronic **Distribution** System 100 perform two main functions: first the SC(s) processing and copy control; and second playback of encrypted Content 113. Whether the End-User... ...to the downloadable objects, the End-User(s) may have a combination of physical and electronic downloadable merchandise in his shopping cart. The Secure Digital **Content** Electronic **Distribution** End-User Device(s) 109 are not involved until after the End-User(s) checks out and submits his final purchase authorisation to the Electronic... ...is a CD 1802 and the Content 113 is music. The CD 1802 takes the place of the Content Hosting Sites 111 to permit the **music** to be **distributed** over physical **media** rather than through electronic means such as broadband. The CD 1802 contains music samples and multiple compressed and encrypted music tracks in a Content SC... ...CD 1802 eliminates the long download times over narrow-band Internet, and the need for a broadband Internet channel. As previously described, for the telecommunications **distribution** of **Content** 113, the end-user using the End User Device(s) 109 access the encryption Key 623 to render the Content 113 by receiving a Transaction... ...The content preparation for the CD 1802 is the same system and methods as described in "Section VIII Content Provider" above. But instead of creating **Content** SC(s) 630 for **distribution** over telecommunications networks, the **Content** SC(s) 630 and Offer SC(s) 640 are written to the CD 1802. Included on the CD 1802 are the Notify SC(s) 1822... ...of times. Until such time as the copy control standards are more stable, alternative methods of copy control have been provided in the Secure Digital **Content** Electronic **Distribution** System 100 so that it does not rely on the copy control watermark in order to provide **rights management** in the consumer device. Storage and p lay/record usage conditions security is implemented utilising encrypted DC Library Collections 196 that are tied to the... ...algorithm. Thus use of widely accepted and proven industry standard algorithms can be used thus further enhancing Digital Content Industry acceptance of the Secure Digital **Content** Electronic **Distribution** System 100.

The second purpose of this Decryption and Re-Encryption 194 process is to remove the requirement that the original master encryption Key 623... ...to encrypt the Content 113 is used for any associated metadata needing to be encrypted.

D. The Player Application 195

1. Overview

The Secure Digital **Content** Electronic **Distribution** Player Application 195 (referred to here as the Player Application 195) is analogous to both a CD, DVD or other Digital Content player and to...as handle requests for information about the stored songs.

6. Inter-application Communication Components 1508

These components are used for coordination between the Secure Digital **Content** Electronic **Distribution** Player and other applications (e.g., Browser, helper-app and/or plug-in, etc) that may invoke the Player Application 195, or that the Player... ...by the Player Application 195. A typical audio enthusiast has a library of CDS holding songs.

All of these are available within the Secure Digital **Content** Electronic **Distribution** System 100. The set of songs that have been purchased from Electronic Digital Content Store(s) 103 are stored within a Digital Content Library 196...

Specification: ...Content Store(s) Embodiment

An Electronic Digital Content Store(s) 103 that wants to participate as a seller of Content 113 in the Secure Digital **Content** Electronic **Distribution** System 100 makes a request to one or more of the Digital Content Provider(s) 101 that provide Content 113 to the Secure Digital **Content** Electronic **Distribution** System 100. There is no definitive process for making the request so long as the two parties come to an agreement. After the digital content... ...s) 105 is contacted, usually via E-mail, with a request that the Electronic Digital Content Store(s) 103 be added to the Secure Digital **Content** Electronic **Distribution** System 100. The digital **content** label provides the name of the Electronic Digital Content Store(s) 103 and any other information that may be required for the Clearinghouse(s) 105... ...End-User Device(s) 109 verifies that the Electronic Digital Content Store(s) 103 is a valid distributor of Content 113 on the Secure Digital **Content** Electronic **Distribution** System 100 by **first** checking the digital certificate revocation list and then using the Public Key 621 of the Clearinghouse(s) 105 to verify the information in the digital... ...660 it determines whether a new revocation list is included and if so, the local revocation list on the End-User Device(s) 109 is **updated**.

B. **Rights Management** Processing

Order SC(s) Analysis

The Clearinghouse(s) 105 receives an Order SC(s) 650 from an End-User(s) after the End-User(s... ...Transaction and Offer SC(s) 641 digital signatures also indirectly verifies that the Electronic Digital Content Store(s) 103 is authorised by the Secure Digital **Content** Electronic **Distribution** System 100. This is based on the fact that the Clearinghouse(s) 105 is the issuer of the certificates. Alternately, the Clearinghouse(s) 105 would... ...SC(s) 660 to the End-User Device(s) 109. The Electronic Digital Content Store(s) 103 is also expected to participate in managing the **distribution** of **Content** 113 to various countries by performing the same checks as the Clearinghouse(s) 105. The Clearinghouse(s) 105 does whatever checking that it can in... ...Content 113 purchase transactions and report request transactions. The information can be used for a variety of purposes such as audits of the Secure Digital **Content** Electronic **Distribution** System...Store(s) 103 so that the Electronic Digital Content Store(s) 103 can charge the End-User(s)' credit card.

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The Encryption Process 811 calls the appropriate Secure Digital **Content** Electronic **Distribution Rights Management** function to encrypt each of the watermarked/encoded song files. This process has no dependencies other than completion of all other audio processing. Upon completion...of media, such as several audio CDS, can be queued up so as to enable the Automatic Metadata Acquisition Tool to create a series of **Content** 113 for electronic **distribution**. For example, all the **Content** 113 could be created from a series of CDS or even selected tracks from one or more CDS examined by the Content Provider(s) 101... ...Metadata SC(s) 620 for Electronic Digital Content Store(s) 103 who access their site. This is accomplished using the toolkit for the Secure Digital **Content** Electronic **Distribution** System 100. The selection process and what information is shown is the discretion of the Content Provider(s) 101.

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2. Content Hosting Site(s) 111 provided by the Secure Digital **Content** Electronic **Distribution** System 100

For the Secure Digital **Content** Electronic **Distribution** System 100 the decision of which site should be used to download the Content 113 is made by the primary content site that received the... ...to make this decision:

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These tools are used by the Electronic Digital Content Store(s) 103 to:

. acquire the Metadata SC(s) 620 packaged by the Content... ...the main variant between the broadcast based service offering and the point-to-point interactive web service type offering.

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Point-to-Point primarily means a one-to-one interactive service between the Electronic Digital Content Store(s) 103 and the End-User Device... ...is a block diagram illustrating the major tools, components and processes of an Electronic Digital Content Store(s) 103.

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Conditions 517 defining the permitted uses of... ...new Content 113 has been placed in the Content Promotions Web Site 156.

None of these notifications are a required step in the Secure Digital **Content** Electronic **Distribution** System flows 100 but are provided as options to allow the Electronic Digital Content Store(s) 103 the opportunity to close its records on the...is an optional process which is available to help the Electronic Digital Content Store(s) 103 feel comfortable with the accounting for the Secure Digital **Content** Electronic **Distribution** System 100.

In another embodiment, this tool can be updated to provide electronic funds transfers for automated periodic payments to the Content Provider(s) 101... ...payments upon reception of an electronic bill from the Clearinghouse(s) 105 after reconciling the bill against the Transaction Log 178.

C. Broadcast Electronic Digital **Content Distribution** Service

Broadcast primarily refers to a one to many transmission method where there is no personal interaction between the End-User Device(s) 109 and... ...Content 113 as well as prepare SC(s) is also used by a satellite based Electronic Digital Content Store(s) 103 to manage and prepare **Content** 113 for **distribution** on a broadcast infrastructure. The SC(s) distributed over a Web service are the same as those distributed over a broadcast service.

X. END-USER DEVICE(S) 109

The applications in the End-User Device(s) 109 for the Secure Digital **Content** Electronic **Distribution** System 100 perform two main functions: first the SC(s) processing and copy control; and second playback of encrypted Content 113. Whether the End-User... ...to the downloadable objects, the End-User(s) may have a combination of physical and electronic downloadable merchandise in his shopping cart. The Secure Digital **Content** Electronic **Distribution** End-User Device(s) 109 are not involved until after the End-User(s) checks out and submits his final purchase authorisation to the Electronic... ...is a CD 1802 and the Content 113 is music. The CD 1802 takes the place of the Content Hosting Sites 111 to permit the **music** to be **distributed** over physical **media** rather than through electronic means such as broadband. The CD 1802 contains music samples and multiple compressed and encrypted music tracks in a Content SC... ...CD 1802 eliminates the long download times over narrow-band Internet, and the need for a broadband Internet channel. As previously described, for the telecommunications **distribution** of **Content** 113, the end-user using the End User Device(s) 109 access the encryption Key 623 to render the Content 113 by receiving a Transaction... ...The content preparation for the CD 1802 is the same system and methods as described in "Section VIII Content Provider" above. But instead of creating **Content** SC(s) 630 for **distribution** over telecommunications networks, the **Content** SC(s) 630 and Offer SC(s) 640 are written to the CD 1802. Included on the CD 1802 are the Notify SC(s) 1822... ...of times. Until such time as the copy control standards are more stable, alternative

methods of copy control have been provided in the Secure Digital **Content** Electronic **Distribution** System 100 so that it does not rely on the copy control watermark in order to provide **rights management** in the consumer device. Storage and play/record usage conditions security is implemented utilising encrypted DC Library Collections 196 that are tied to the End... ...algorithm. Thus use of widely accepted and proven industry standard algorithms can be used thus further enhancing Digital Content Industry acceptance of the Secure Digital **Content** Electronic **Distribution** System 100.

The second purpose of this Decryption and Re-Encryption 194 process is to remove the requirement that the original master encryption Key 623...to encrypt the Content 113 is used for any associated metadata needing to be encrypted.

D. The Player Application 195

1. Overview

The Secure Digital **Content** Electronic **Distribution** Player Application 195 (referred to here as the Player Application 195) is analogous to both a CD, DVD or other Digital Content player and to... ...as handle requests for information about the stored songs.

6. Inter-application Communication Components 1508

These components are used for coordination between the Secure Digital **Content** Electronic **Distribution** Player and other applications (e.g., Browser, helper-app and/or plug-in, etc) that may invoke the Player Application 195, or that the Player... ...by the Player Application 195. A typical audio enthusiast has a library of CDS holding songs. All of these are available within the Secure Digital **Content** Electronic **Distribution** System 100. The set of songs that have been purchased from Electronic Digital Content Store(s) 103 are stored within a Digital Content Library 196...

10/K/7 (Item 7 from file: 348)
DIALOG(R)File 348: EUROPEAN PATENTS
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SYSTEMS AND METHODS FOR SECURE TRANSACTION MANAGEMENT AND ELECTRONIC RIGHTS PROTECTION

Country	Number	Kind	Date

Legal Status Type	Pub. Date	Kind	Text

Language

Fulltext Availability	Available Text	Language	Update	Word Count

Fulltext Availability Available Text	Language	Update	Word Count
Total Word Count (Document A)			
Total Word Count (Document B)			
Total Word Count (All Documents)			

Specification: ...PCIT0001 DNUM=WO9220022A> WO 92/20022 discloses a distributed computer system which employs a licence management system to account for software product usage. Each **licensed** product upon start-up makes a call to a license server to check on whether usage is permitted. The license server checks a database of... ...indicates acceptance and may also determine the identity of the user.

An aim of the present invention is to provide an adaptable technique for the **distribution** of digital electronic **content** and control information that can be used to protect the rights of a number of different parties.

The present invention is defined in independent claims... ...electronic information.

VDE provides comprehensive and configurable transaction management, metering and monitoring technology. It can change how electronic information products are protected, marketed, packaged, and **distributed**. When used, VDE should result in higher revenues for information providers and greater user satisfaction and value. Use of VDE will normally result in lower usage costs, decreased transaction costs, more efficient access to electronic information, re-usability of **rights** protection and other transaction **management** implementations, greatly improved flexibility in the use of secured information, and greater standardization of tools and processes for electronic transaction management. VDE can be used... ...and risk, protecting money and credit, and generally protecting the security of information. VDE employs a system that uses a common set of processes to **manage rights** issues in an efficient, trusted, and cost-effective way.

VDE can be used to protect the rights of parties who create electronic content such as... ...rights of authors of electronic content,

2. (b) the commercial rights of distributors of content,

3. (c) the rights of any parties who facilitated the **distribution** of **content**,

4. (d) the privacy rights of users of content,

5. (e) the privacy rights of parties portrayed by stored and/or **distributed content**, and

6. (f) any other rights regarding enforcement of electronic agreements.VDE can enable a very broad variety of electronically enforced commercial and societal agreements... ...software once removed from either its physical or electronic package.

Traditional electronic information rights protection systems are often inflexible and inefficient and may cause a **content** provider to choose costly **distribution** channels that increase a product's price. In general these mechanisms restrict product pricing, configuration, and marketing flexibility. These compromises are the result of techniques... ...value to justify a given product's cost in the eyes of many potential users. VDE allows content providers and distributors to create applications and **distribution** networks that reflect **content** providers' and users' preferred business models. It offers users a ...providers. One or more providers of electronic information can easily combine selected building blocks to create a rights application that is unique to a specific **content distribution** model. A group of these pieces can represent the capabilities needed to fulfill the agreement(s) between users and providers. These pieces accommodate many requirements of electronic commerce including:

) the distribution of permissions to use electronic information;

) the persistence of the control information and sets of control information **managing** these permissions;

) configurable control set information that can be selected by users for use with such information;

) data security and usage auditing of electronic information; and

) a secure system for currency, compensation and debit **management**.

For electronic commerce, a **rights** application, under the preferred embodiment of the present invention, can provide electronic enforcement of the business agreements between all participants. Since different groups of components... ...various tools that enable system designers to directly insert VDE capabilities into their products. These tools include an Application Programmer's Interface ("API") and a **Rights** Permissioning and **Management** Language ("RPML"). The RPML provides comprehensive and detailed control over the use of the invention's features. VDE also includes certain user interface subsystems for... ...and/or a data security chain model for handling, auditing, reporting, and payment. It can provide efficient, reusable, modifiable, and consistent means for secure electronic **content**: **distribution**, usage control, usage payment, usage auditing, and usage reporting. Content may, for example, include:

) financial information such as electronic currency and credit;

) commercially **distributed** electronic information such as reference databases, movies, games, and advertising; and

) electronic properties produced by persons and organizations, such as documents, e-mail, and proprietary... ...their transaction environment to accommodate:

1. (1) desired content models, content control models, and content usage information pathways,

2. (2) a complete range of electronic **media** and **distribution** means,

3. (3) a broad range of pricing, payment, and auditing strategies,

4. (4) very flexible privacy and/or reporting models,

5. (5) practical and... ...unauthorized use of electronic information, by controlling and auditing (and other administration of use) electronically stored and/or disseminated information. This includes, for example, commercially **distributed content**, electronic currency, electronic credit, business transactions (such as EDI), confidential communications, and the like. VDE can further be used to enable commercially provided electronic content... ...8. (8) Secure control means that can allow each VDE installation to perform VDE content authoring (placing content into VDE containers with associated control information), **content distribution**, and **content** usage; as well as clearinghouse and other administrative and analysis activities employing content usage information.

VDE may be used to migrate most non-electronic, traditional... ...use software to substitute for, or complement, said hardware (provided by Host Processing Environments (HPEs)), operate in conjunction with secure communications, systems integration software, and **distributed** software control information and support structures, to achieve the electronic contract/rights protection environment of the present invention. Together, these VDE components comprise a secure, virtual, **distributed content** and/or appliance control, auditing (and other administration), reporting, and payment environment. In some embodiments and where commercially acceptable, certain VDE participants, such as clearinghouses... ...hardware elements and interoperate, for example, with VDE end-users and content providers. VDE components together comprise a configurable, consistent, secure and "trusted" architecture for **distributed**, asynchronous control of electronic **content** and/or appliance usage. VDE supports a "universe wide" environment for electronic content delivery, broad dissemination, usage reporting, and usage related payment activities.

VDE provides... ...VDE foundation elements along with secure independently deliverable VDE components that enable electronic commerce models and relationships to develop. VDE specifically supports the unfolding of **distribution** models in which **content** providers, over time, can expressly agree to, or allow, subsequent content providers and/or users to participate in shaping the control information for, and consequences... ...activities are supported by capabilities of the present invention. As a result, VDE supports most types of electronic information and/or appliance: usage control (including **distribution**), security, usage auditing, reporting, other administration, and payment arrangements.

VDE, in its preferred embodiment, employs object software technology and uses object technology to form "containers... ...containers may contain electronic content products or

other electronic information and some or all of their associated permissions (control) information. These container objects may be **distributed** along pathways involving **content** providers and/or content users. They may be securely moved among nodes of a Virtual Distribution Environment (VDE) arrangement, which nodes operate VDE foundation software... ...use of the preferred embodiment of the present invention may be employed both for distributing VDE control instructions (information) and/or to encapsulate and electronically **distribute content** that has been at least partially secured.

Content providers who employ the present invention may include, for example, software application and game publishers, database publishers... ...enforcing commercial agreements and enabling the protection of privacy rights. VDE can securely deliver information from one party to another concerning the use of commercially **distributed** electronic **content**. Even if parties are separated by several "steps" in a chain (pathway) of handling for such content usage information, such information is protected by VDE...objects to augment configurability, portability, and security of the VDE environment. It also employs a software object architecture for VDE content containers that carries protected **content** and may also carry both freely available information (e.g, summary, table of contents) and secured content control information which ensures the performance of control... ...usage according to criteria set by holders of rights to an object's contents and/or according to parties who otherwise have rights associated with **distributing** such **content** (such as governments, financial credit providers, and users).

In part, security is enhanced by object methods employed by the present invention because the encryption schemes... ...computer platforms and operating systems, and said various portions may all be carried by a VDE container.

An objective of VDE is supporting a transaction/**distribution** control standard. Development of such a standard has many obstacles, given the security requirements and related hardware and communications issues, widely Differing environments, information types... ...information usage, business and/or data security goals, varieties of participants, and properties of delivered information. A significant feature of VDE accommodates the many, varying **distribution** and other transaction variables by, in part, decomposing electronic commerce and data security functions into generalized capability modules executable within a secure hardware SPU and... ...control information and/or add new control information as necessary (including the elimination of no longer required elements).

VDE supports trusted (sufficiently secure) electronic information **distribution** and usage control models for both commercial electronic **content distribution** and data security applications. It can be configured to meet the diverse requirements of a network of interrelated participants that may include content creators, content... ...range of commercial and data security models, ensure against unauthorized use of confidential and/or proprietary information and commercial electronic transactions. VDE's electronic transaction **management** mechanisms can enforce the electronic **rights** and agreements of all parties participating in widely varying business and data security models, and this can be efficiently achieved through a single VDE implementation... ...and/or users; as

well as to electronic content generally on a given installation, to specific properties, property portions, classes and/or other groupings of **content**.

Distribution using VDE may package both the electronic content and control information into the same VDE container, and/or may involve the delivery to an end... ...with capability parameter data to reflect the elements of one or more express electronic agreements between VDE participants in regards to the use of electronic **content** such as commercially **distributed** products. These control capabilities manage the use of, and/or auditing of use of, electronic content, as well as reporting information based upon content use... ...one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a VDE application for a given **content** model (such as **distribution** of entertainment on CD-ROM, content delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would... ...nature of the VDEF capabilities that will and/or may apply to certain electronic information. A VDE content container is an object that contains both **content** (for example, commercially **distributed** electronic information products such as computer software programs, movies, electronic publications or reference materials, etc.) and certain control information related to the use of the... ...make a VDE container available to other parties. Control information delivered by, and/or otherwise available for use with, VDE content containers comprise (for commercial **content distribution** purposes) VDEF control capabilities (and any associated parameter data) for electronic content. These capabilities may constitute one or more "proposed" electronic agreements (and/or agreement... ...more VDEF capabilities may be present at a VDE installation, and certain VDE agreements may have been entered into during the registration process for a **content distribution** application, to be used by such installation for securely controlling VDE content usage, auditing, reporting and/or payment. Similarly, a specific VDE participant may enter... ...in order to pay for user use of the content. A certain content provider might, for example, require metering the number of copies made for **distribution** to employees of a given software program (a portion of the program might be maintained in encrypted form and require the presence of a VDE... ...within the CPU/RAM package before it is executed. This process is used for important VDE related data when such data is stored on unprotected **media**, for example, standard host storage, such as random access memory, mass storage, etc. In that event, a VDE SPU would encrypt data that results from... ...time-ageing of encryption keys, the compartmentalization of both stored control information (including differentially tagging such stored information to ensure against substitution and tampering) and **distributed content** (to, for many **content** applications, employ one or more content encryption keys that are unique to the specific VDE installation and/or user), private key techniques such as triple... ...and to provide the benefits of digital signature and authentication to securely bind together the nodes of a VDE arrangement, secure processing of important transaction **management** executable code, and a combining of a small amount of highly secure, hardware protected storage space with a much larger "exposed" mass media storage space storing secured (normally encrypted and tagged) control and audit information. VDE employs special purpose hardware **distributed** throughout some or all locations of a VDE implementation: a) said hardware controlling important elements of: content preparation (such as causing such content to be... ...byte offsets representing

increments of logically related information. VDE supports as many simultaneous predefined increment types as may be practical for a given type of **content** and business model.

) securely store at a user's site potentially highly detailed information reflective of a user's usage of a variety of different **content** segment types and employing both inexpensive "exposed" host mass storage for maintaining detailed information in the form of encrypted data and maintaining summary information for... ...reporting information handling, may also be employed as one or more pathways for electronic payment handling (payment is characterized in the present invention as Administrative **content**) for electronic **content** and/or appliance usage. These pathways are used for conveyance of all or portions of content, and/or content related control information. Content creators and other providers can specify the pathways that, partially or fully, must be used to disseminate commercially **distributed** property **content**, **content** control information, payment administrative content, and/or associated usage reporting information. Control information specified by content providers may also specify which specific parties must or...ID, client network ID, client project ID, and client employee ID, or any appropriate subset of the above).

) provide a general purpose, secure, component based **content** control and **distribution** system that functions as a foundation transaction operating system environment that employs executable code pieces crafted for transaction control and auditing. These code pieces can... ...businesses. Templates are applications or application add-ons under the present invention. Templates support the efficient specification and/or manipulation of criteria related to specific **content** types, **distribution** approaches, pricing mechanisms, user interactions with content and/or administrative activities, and/or the like. Given the very large range of capabilities and configurations supported... ...to that user, or a content or other business model can very substantially limit difficulties associated with content containerization (including placing initial control information on **content**), **distribution**, client administration, electronic agreement implementation, end-user interaction, and clearinghouse activities, including associated interoperability problems (such as conflicts resulting from security, operating system, and/or... ...broad use, or for more focused activities. A given VDE participant may have a plurality of templates available for different tasks. A party that places **content** in its **initial** VDE container may have a variety of different, configurable templates depending on the type of content and/or business model related to the content. An... ...and/or auditing of either the same specific copy of electronic information content and/or differently regulating different copies (occurrences) of the same electronic information **content**. Differing models for billing, auditing, and security can be applied to the same piece of electronic information content and such differing sets of control information... ...organizations, to specify preferences or requirements related to their use of electronic content and/or appliances. Content users, such as end-user customers using commercially **distributed content** (games, information resources, software programs, etc.), can define, if allowed by senior control information, budgets, and/or other control information, to manage their own internal... ...that has been certified as acceptable (e.g., reliable and trusted) for use with a specific VDE application, class of applications, and/or a VDE **distributed** arrangement. This modification

(evolution) of control information can occur upon content control information (load modules and any associated data) circulating to one or more VDE... ...establish, modify, and/or contribute to, permission, auditing, payment, and reporting control information related to controlling, analyzing, paying for, and/or reporting usage of, electronic **content** and/or appliances (for example, as related to usage of VDE controlled property content). Independently delivered (from an independent source which is independent except in... ...received, for example, from a government agency. Content providers might be required by law to incorporate such control information into the control information for commercially **distributed content** and/or services related to appliance usage. Proposed control information is used to an extent allowed by senior control information and as determined by any... ...models for the same content property and/or property portion. This allows, for example, for concurrent business activities which are dependent on electronic commercial product **content distribution**, such as acquiring detailed market survey information and/or supporting advertising, both of which can increase revenue and result in lower content costs to users... ...and/or overall control models may be applied, as determined or allowed by control information, in differing manners to different participants in a pathway of **content**, reporting, payment, and/or related control information handling. VDE supports applying different content control information to the same and/or different **content** and/or appliance usage related activities, and/or to different parties in a content and/or appliance usage model, such that different parties (or classes of VDE users, for example) are subject to differing control information managing their use of electronic information **content**. For example, differing control models based on the category of a user as a distributor of a VDE controlled content object or an end-user... ...enable a user to securely extract, through the use of the secure subsystem at the user's VDE installation, at least a portion of the **content** included within a VDE content container to produce a new, secure object (**content** container), such that the extracted information is maintained in a continually secure manner through the extraction process. Formation of the new VDE container containing such...present invention's trusted/secure, universe wide, distributed transaction control and administration system. These components support VDE related: object creation (including placing control information on **content**), secure object **distribution** and management (including distribution control information, financial related, and other usage analysis), client internal VDE activities administration and control, security **management**, user interfaces, payment disbursement, and clearinghouse related functions. These components are designed to support highly secure, uniform, consistent, and standardized: electronic commerce and/or data... ...protected (at least in part encrypted) form through telecommunication of a VDE container to an appropriate party such as a clearinghouses, provider of original property **content** or appliance, or an agent for such provider (other than a clearinghouse). Payment information may be packaged in said VDE content container with, or without... ...be encrypted as it leaves the repository. Fingerprinting would preferably take place as the content leaves the repository, but before the encryption step.

Encrypted repository **content** can be decrypted, for example in a secure VDE sub-system, fingerprint information can be inserted, and then the **content** can be re-encrypted for transmission. Embedding identification information of the intended recipient user and/or VDE installation into **content** as it leaves, for example, an Internet repository, would

provide important information that would identify or assist in identifying any party that managed to compromise the security of a VDE installation or the delivered content. If a party produces an authorized clear form copy of VDE controlled **content**, including making unauthorized copies of an authorized clear form copy, fingerprint information would point back to that individual and/or his or her VDE installation... ...unencrypted form. This information would be useful in tracking who may have "broken" the security of a VDE installation and was illegally making certain electronic **content** available to others.

Fingerprinting may provide **additional**, available information such as time and/or date of the release (for example extraction) of said **content** information. Locations for inserting fingerprints may be specified by VDE installation and/or **content** container control information. This information may specify that certain areas and/or precise locations within properties should be used for fingerprinting, such as one or... ...actually used.

) support both "translations" of VDE electronic agreements elements into modern language printed agreement elements (such as English language agreements) and translations of electronic **rights** protection/transaction **management** modern language agreement elements to electronic VDE agreement elements. This feature requires maintaining a library of textual language that corresponds to VDE load modules and... ...distributor that failed to make payments and/or report usage information to a content provider might find that their budget for creating permissions records to **distribute** the **content** provider's **content** to users, and/or a security budget limiting one or more other aspect of their use of the provider's content, are not being refreshed... ...to efficiently, concurrently support multiple financial currencies (e.g. dollars, marks, yen) and content related budgets, and/or billing increments as well as very flexible **content distribution** models.

) support, complete, modular separation of the control structures related to (1) content event triggering, (2) auditing, (3) budgeting (including specifying no right of use...available remotely by telecommunication means). Required methods (methods listed as required for property and/or appliance use) must be available as specified if VDE controlled **content** (such as intellectual property **distributed** within a VDE **content** container) is to be used. Methods that control content may apply to a plurality of VDE container objects, such as a class or other grouping... ...the present invention is that creators, distributors, and users of content can select from among a set of predefined methods (if available) to control container **content** usage and **distribution** functions and/or they may have the right to provide new customized methods to control at least certain usage functions (such "new" methods may be... ...or she will allow to be reported and/or a financial clearinghouse establishing certain criteria for use of its credit for payment for use of **distributed content**) can be confident that their contributed and accepted control information will be enforced (within the security limitations of a given VDE security implementation design). This... ...the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including:

1. (1) security,

2. (2) **content** use control, including electronic **distribution**,

3. (3) privacy (regarding, for example, information concerning parties described by medical, credit, tax, personal, and/or of other forms of confidential information),

4. (4... ...many examples of transactions that can be supported by virtual distribution environment 100 include:

C home banking and electronic payments;

C electronic legal contracts;

C **distribution** of "**content**" such as electronic printed matter, video, audio, images and computer programs; and

C secure communication of private information such as medical records and financial information... ...and distributors. For example, in the past, information was distributed on records or disks that were difficult to copy. In the past, private or secret **content** was **distributed** in sealed envelopes or locked briefcases delivered by courier. To ensure appropriate compensation, consumers received goods and services only after they handed cash over to a seller. Although information utility 200 may deliver information by transferring physical "things" such as electronic storage **media**, the virtual **distribution** environment 100 facilitates a completely electronic "chain of handling and control."

VDE Flexibility Supports Transactions

Information utility 200 flexibly supports many different kinds of information... ...1 also shows a publishing house 214. Publishing house 214 may act as a distributor for an author 206. The publishing house 214 may **distribute** rights to use "**content**" (such as computer software, electronic newspapers, the video produced by publishing house 214, audio, or any other data) to consumers such as office 210. The... ...from the content they apply to provides great advantages.

Use rights distributed by publishing house 214 may, for example, permit office 210 to make and **distribute** copies of the **content** to its employees. Office 210 may act as a redistributor by extending a "chain of handling and control" to its employees. The office 210 may virtual distribution environment 100. The electronic storage **media** may be used to **distribute content**, "rules and controls," or other information.

Example of What's Inside Information Utility 200

"Information utility" 200 in Figure 1 can... ...100 operating properly. A content and message storage 200g may store information for use by participants within or outside of information utility 200.

Example of **Distributing Content**" Using A Chain of Handling and Control"

As explained above, virtual distribution environment 100 can be used to manage almost any sort of transaction. One type of important transaction that virtual distribution environment 100 may be used to manage is the **distribution** or communication of "**content**" or other important information. Figure 2 more abstractly shows a "model" of how the Figure 1 virtual distribution environment 100 may be used to provide a "chain of handling and control" for **distributing content**. Each of the blocks in Figure 2 may correspond to one or more of the VDE participants shown in Figure 2 example, a VDE content creator 102 creates "content." The content creator 102 may also specify "rules and controls" for **distributing** the **content**. These **distribution**-related "rules and controls" can specify who has permission to **distribute** the rights to use **content**, and how many users are allowed to use the content.

Arrow 104 shows the content creator 102 sending the "rules and controls" associated with the... ...an electronic highway 108 (or by some other path such as an optical disk sent by a delivery service such as U. S. mail). The **content** can be **distributed** over the same or different path used to send the "rules and controls." The distributor 106 generates her own "rules and controls" that relate to... ...These usage-related "rules and controls" must be consistent with the "rules and controls" specified by content creator 102.

Arrow 110 shows the distributor 106 **distributing** rights to use the **content** by sending the content's "rules and controls" to a content user 112 such as a consumer. The content user 112 uses the content in... ...or they may be Different people. For example, a musical performing group may act as both content creator 102 and distributor 106 by creating and **distributing** its own **musical** recordings. As another example, a publishing house may act as a distributor 106 to distribute rights to use works created by an author content creator 102. Content creators 102 may use a distributor 106 to efficiently manage the financial end of **content distribution**.

The "financial clearinghouse" 116 shown in Figure 2 may also be a "VDE administrator." Financial clearinghouse 116 in its VDE administrator... ...is revealed to allows the privacy rights of all VDE participants to be protected.

Rules and Contents" Can Be Separately Delivered

As mentioned above, virtual **distribution** environment 100 "associates" **content** with corresponding "rules and controls," and prevents the content from being used or accessed unless a set of corresponding "rules and controls" is available. The distributor 106 doesn't need to deliver content to control the **content**'s **distribution**. The preferred embodiment can securely protect content by protecting corresponding, usage enabling "rules and controls" against unauthorized distribution and use.

In some examples, "rules and controls" may travel with the **content** they apply to. Virtual **distribution** environment 100 also allows "rules and controls" to be delivered separately from content. Since no one can use or access protected content without "permission"

from... ...808 specifies the rights associated with the object 300 such as, for example, who can open the container 302, who can use the object's **contents**, who can **distribute** the object, and what other control mechanisms must be active. For example, permissions record 808 may specify a user's rights to use, distribute and... ...printer 622;

broadcast reception 624;

a document scanner 626; and

a "cable" 628 connecting the appliances with a "network."

Virtual distribution environment 100 provides a "**rights** operating system" 602 that **manages** appliance 600 and SPU 500 by controlling their hardware resources. The operating system 602 may also support at least one "application" 608. Generally, "application" 608...control path that uses content creator structures to meter user activities; and structures created/owned by a financial provider to handle financial parts of a **content distribution** transaction (e.g., defining a credit budget that must be present in a control structure to establish creditworthiness, audit processes which must be performed by...more keys to fragmented or seemingly random pieces of content contained in an object 300, database, or other information entity.

Many objects 300 that are **distributed** by physical **media** and/or by "out of channel" means (e.g., redistributed after receipt by a customer to another customer) might not include key blocks 810 in...or a usable copy of it to a friend would normally be free to do so. Traveling Objects have great potential commercial significance, since useful **content** could be primarily **distributed** by users and through bulletin boards, which would require little or no distribution overhead apart from registration with the "original" content provider and/or clearinghouse... ...key, giving a cryptoanalyst both more information in cyphertext to analyze and a greater incentive to perform cryptoanalysis.

In the case of a "traveling object," **content** owners may **distribute** information with some or all of the key blocks 810 include in the object 300 in which the content is encapsulated. Putting keys in distributed... ...e.g. summary form, or by actual deletion); add or update permissions records 808 for previously registered objects; add or update budget records; add or **update** user **rights** records; and add or **update** load modules.

In the preferred embodiment, an administrative object may be sent, for example, by a distributor, client administrators, or, perhaps, a clearinghouse or other...and compactness. SPU 500 and platform providers may provide versions of the standard load modules 1100 in order to make their products cooperate with the **content** in **distribution** mechanisms contemplated by VDE 100. The preferred embodiment creates and uses native mode load modules 1100 in lieu of an interpreted or "p-code" solution...

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	Country	Number	Kind	Date
Patent				19

Detailed Description:

...ENVIRONMENT AND METHOD THEREOF
FIELD OF THE INVENTION
The present invention relates to managing e-Commerce-based network assets and more particularly to network asset **management** in a network-based supply chain environment.

to
BACKGROUND OF THE INVENTION
The ability to quickly, easily and efficiently communicate has always been a critical... ...telephone switches, central offices, key and hybrid telephone systems (small telecommunications switches), call accounting systems, voice messaging systems, computer telephony interface (CTI) devices, automatic call **distribution** (ACD) devices, internet servers, etc., the demand for and installation of these systems has continued to expand. Often, a vast number of sites have layered... ...surveying users as to their desires and preferences so that these can be accurately reflected through programming of the equipment. This is typically done by **distributing** a questionnaire to each user to receive information sufficient to allow the equipment to be properly configured. Thus, not only is there a substantial time...application services in accordance with one embodiment of the present
invention;
Figure 69 is a flowchart illustrating a profile management service of the customer relationship **management**-related web application services in accordance with one embodiment of the present
invention;
Figure 70 is a flowchart illustrating the content management and publishing-related...illustrative embodiment of the present invention, benefits for the service provider under the Maintenance and Service component may include: better on-line network performance, and **distribution** facility rationalization. Benefits for the manufacturer under the Maintenance and Service component may include: duplication reduction, and distribution facility rationalization.

Figure 5 is a schematic...impossible to locate individual DS 1 or DSO channels within a DS3 bit stream. To extract a single channel, a DS3 signal would need to **first** be demultiplexed through M 1 3 components into twenty-eight DS 1 s before the channels could be switched or rearranged. As a result, the...home monitoring and control networks, and one or more wide band distribution networks interconnecting home monitoring and

control networks and the central computer facility. The **distribution** networks connect to one or more central computer systems through substation gateways via high-speed digital lines.

The home monitoring and control network is located... ...0 consumption to the power utility via the distribution network. Further, the home network permits automatic meter reading and remote service disconnect and reconnect.

The **distribution** network includes a wire-based (hybrid fiber/coaxial cable) distribution system and an intelligent utility unit (IUU), which interfaces with the home network. The FJU...three tiered support structure is optimal for satisfying customer service needs. Each tier, or level, possesses an increasing level of skill, with tasks and responsibilities **distributed** accordingly. Such a structure is as follows.

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Tier 1 - typically has a broad set of technical skills and is the first level of support...
...Management Planning
Managing Change Planning
Strategic Planning
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Managing Change
Includes processes and procedures for handling necessary changes to systems or the organization in a **distributed** environment.

Change Control
Testing
Implementing
Software Distribution
Operations Management
Systems Management consists of the day-to-day operational functions required to maintain the system (e...billing in the present invention is increased because the hybrid network also contains proxy intelligence.

Figure 13 shows a block diagram of the Network Data **Management** 1300 in accordance with a preferred embodiment of the present invention. Network Data **Management** 1300 encompasses the collection of usage data and events for the purpose of network performance and traffic analysis. This data may also be an input to Billing (Rating and Discounting) processes at the Service **Management** Layer, depending on the service and its architecture.

The process provides sufficient and relevant information to verify compliance/ non-compliance to Service Level Agreements (SLA... ...performance degradation). This also includes thresholds and specific requirements for billing.

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This includes information on capacity, utilization, traffic and usage collection, In some

cases, **changes** in traffic conditions may trigger **changes** to the network for the purpose of traffic control. Reduced levels of network capacity can result in requests to Network Planning for more resources.

Figure... ...network.

Further, in step 1406, billing rates and discounts are determined based on the status of the hybrid network.

In addition to the Network Data **Management** 1300 generating billing events, the present invention also uses a Customer Interface Management process 132, as shown in Figure 15, to directly interact with customers... ...aim is to provide meaningful and timely customer contact
experiences as frequently as the customer requires.

Figure 16 is a flowchart illustrating a Customer Interface **Management** Process in accordance with a preferred embodiment. First, in step 1600, a service level agreement is received for a hybrid network customer. Next, in step... ...to the hybrid network. Thereafter, in step 1606, events are generated based on the customer inquiries
70
and the service level agreement.

The Network Data **Management** 1300 and Customer Interface **Management** process 1500 are used to give information to the Customer Quality of Service **Management** Process 1302, as shown in Figure 17. The Customer Quality of Service Management Process 1302 encompasses monitoring, managing and reporting of quality of service as... ...to manage service levels that meet specific SLA commitments and standard service zo commitments.

Figure 18 is a flowchart illustrating a Customer Quality of Service **Management** Process in accordance with a preferred embodiment. First, in step 1800, a hybrid network event is received which may include customer inquiries, required reports, completion... ...and, in step 1804, generates the customer reports accordingly based on the event received.

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Figure 19 shows a block diagram of the Service Quality **Management** 1304 in accordance with a preferred embodiment of the present invention. The Service Quality Management Process 1304 supports monitoring service or product quality on a... ...provide effective service specific monitoring, management and customers meaningftil and timely performance information across the parameters of the specific service.

The aim is also to **manage** service levels to meet SLA commitments and standard commitments for the specific service.

1 5
Figure 20 is a flowchart illustrating a Service Quality Management... ...the quality

management network data is
generated. Such quality management network data may include constraint data, capacity data, service class quality data, service modification recommendations, **additional** capacity requirements, performance requests, and/or usage requests.

Finally, in step 2006, a network process to which to send the generated data is identified.

Figure 21 shows a block diagram of the Problem Handling Process 1502. The Problem Handling Process receives information from the Customer Interface **Management** Process 1500 and the Customer Quality of service Management Process 1302. It is responsible for receiving service complaints from customers, resolve them to the customer... ...reported by the customer or not),
resolving the problem to the customer's satisfaction, and
providing meaningful status on repair or restoration activity.

This proactive **management** also includes planned maintenance outages. The aim is to have the largest percentage of problems proactively identified and communicated to the customer, to provide meaningful... ...outage notification. Finally, in step 2204, the progress of the
implementation of the resolution is tracked.

The Problem Handling Process 1502 and the Network Data **Management** 1300 feed information to the Rating and Discounting Process 1306, as shown in Figure 23. This process applies the correct rating rules to usage data... ...usage and to correctly apply discounts, promotions and credits.

Figure 24 is a flowchart illustrating Rating and Discounting Process in accordance with a preferred embodiment. **First**, in step 2400, hybrid network customer usage information is received. In step 2402, network service level agreement violations are collected, and, in step
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, network...to provide universal information access by an object request broker. The object request broker allows the Information Services Manager to share management information stored in **distributed** databases. The Proactive Threshold Manager uses the infori-nation provided by the Information Services Manger to determine a current level of service and compare the... ...violating SLAs.

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Element Management
As discussed above, the element manager works with the Information Services Manager and the Presentation Manager to assist in the **management** of the hybrid network system. The three components are briefly described below to provide context for the detailed discussion of the element manager that follows... ...to provide ubiquitous infori-nation access via an object request broker (ORB). The ORB allows the information services manager to share management information stored in **distributed** databases.

The information services manager stores critical management infori-nation into operational (real-time) and analytical (historical) distributed databases. These databases 'de common data storage...with capability parameter data to reflect the elements of one or more express electronic agreements between WAY participants in regards to the use of electronic **content** such as commercially **distributed** products. These control capabilities manage the use of, and/or auditing of use of, electronic content, as well as reporting information based upon content use... ...one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given **content** model (such as **distribution** of entertainment on CD-ROM, content delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would...nature of the WAFF capabilities that will and/or may apply to certain electronic information. A WAF content container is an object that contains both **content** (for example, commercially **distributed** electronic information products such as computer software programs, movies, electronic publications or reference materials, etc.) and certain control information related to the use of the... ...make a WAF container available to other parties. Control information delivered by, and/or otherwise available for use with, WAF content containers comprise (for commercial **content distribution** purposes) WAFF control capabilities (and any associated parameter data) for electronic content. These capabilities may constitute one or more "proposed" electronic agreements (and/or agreement... ...more WAFF capabilities may be present at a WAF installation, and certain WAY agreements may have been entered into during the registration process for a **content distribution** application, to be used by such installation for securely controlling WAF content usage, auditing, reporting and/or payment. Similarly, a specific WAF participant may enter...to formulate their transaction environment to accommodate.

(1) desired content models, content control models., and content usage information pathways,
(2) a complete range of electronic **media** and **distribution** means,
(3) a broad range of pricing, payment, and auditing strategies,
(4) very flexible privacy and/or reporting models,
141
(5) practical and effective security... ...steps (1) through (5) can enable most "real world" electronic commerce and data security models, including models unique to the electronic world.

WAF's transaction **management** capabilities can enforce.

(1) privacy **rights** of users related to information regarding their usage of electronic information and/or appliances,
(2) societal policy such as laws that protect rights of content...can further comprise the step of the host computer detecting an inventory level threshold below which inventory of the article is to be restocked.

ELECTRONIC **LICENSE** DISTRIBUTION AND **MANAGEMENT**

Tracks user **license** entitlements
Creates an electronic license entry on backend systems
Sends electronic license to user
As shown in Figure 64, a method, system, and article of... ...may even be prevented from utilizing the software until the license agreement is generated.

Most software vendors currently favor licensing as the preferred method of **distributing** software. Licensing software provides the vendor with a certain
amount of control over the distributed software which may be used to the vendor's advantage...has been made and the license obtained, the user cannot read the license terms prior to the request. In addition, this system lacks flexibility. To **change** the **licensing** terms, the code in the application must be revised.

Recently, generation and sales of software programs have become significant businesses both for companies which are... ...of the program to specified time periods. A problem arises particularly in digital data processing systems which have multiple users and/or multiple processors, namely, **managing** use of **licensed** software to ensure that the use is within the terms of the license, that is, to ensure that the software is only used on identified...to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,
(2) **content** use control, including electronic **distribution**,
(3) privacy (regarding, for example, information concerning parties described by medical, credit,
tax, personal, and/or of other forms of confidential information),
(4) management of...

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	Country	Number	Kind	Date
Patent				19

Detailed Description:

...flowchart illustrating a Customer Interface Management Process in accordance with a preferred embodiment;

Figure 17 shows a block diagram of the Customer Quality of Service **Management** Process in
accordance with a preferred embodiment;
Figure 18 is a flowchart illustrating a Customer Quality of Service Management Process in
accordance with a preferred...architecture in an online advertising scenario; Figure 115 depicts a sample architecture providing direct network access to several of customers in order to share specifications, **distribute** engineering designs, and collaborate on works in progress;
Figure I 1 6 depicts another exemplary Security Architecture in the scenario of Figure I 1 5...benefits for the manufacturer under the Demand and Supply Planning component in this illustrative embodiment of the present invention may include the following.

duplication reduction, **distribution** facility rationalization, reduced inventories, and manufacturing capacity utilization.

With regards to the Order Management component for this illustrative embodiment, benefits for the service provider may...home monitoring and control networks, and one or more wide band distribution networks interconnecting home monitoring and control networks and the central computer facility. The **distribution** networks connect to one or more central computer systems through substation gateways via high-speed digital lines.

The home monitoring and control network is located... ...RJU controls, communicates, and configures devices within the home network, and communicates information from the home network back to the utility central computer via the **distribution** system. The **distribution** network is configured in cells or small hubs which support 250-2,000 users at a time.

35
The utility central computer includes a T...operational (real-time) and analytical (historical) distributed databases. These databases 'de common data storage so that new products can be easily inserted into the
provi
management environment. For example, if an event is received at an element manager that is deemed critical to display to a network user, the information services...and correlations across multiple dimensions. Build models of the behavior of the data in order to predict future growth or problems and facilitate 1 0 **managing** the network in a proactive, yet cost-effective manner.

Customer to Event Mapping Module - Add-on module to the **Managed** Networked Services Integrated Solution which maps network element events, to service offerings, to customers. This tool allows the Customer Service Representative to proactively address 1 5 network outages with customers.

Process Definitions and Functions
Service Planning

Service Planning includes both the strategic and tactical planning required to manage **distributed** environments effectively. Although most planning typically occurs during rollout of the system, certain planning activities must otherwise take place. Service Planning ensures that **change** can be successfully controlled and implemented.

Service Management Planning
Operations **Management** Planning
Managing Change Planning
Strategic Planning
Managing Change
53
in a distributed environment.

Change Control
Testing
Implementing
Software Distribution
Operations Management
Systems Management consists of the day-to-day operational functions required to maintain the system (e.g. fault detection / correction, security **management** and performance **management**).

Production Control
Monitoring and Control
Fault Management
Security Management
Service Management
Service Management controls the overall service to the users of the system. It isolates...improved to deliver higher resolution digital media over the cable infrastructure using NGN and CORE delivery mechanisms. The network becomes transparent and the applications and **content** drive the creativity of the service creation process. The PSTN like services will be delivered to devices connected via cable access just like they are...of service violations and rebates due to service level agreement violations, is collected and processed. Thereafter, in step 2604, customer account invoices are created for **distribution** based on the customer payment inforination and the billing data.

Mediation and activity tracking are provided by the event logger and event manager. The event...switch determines if the originating trunk group type is an Integrated Services User Parts Direct Access Line (ISUP DAL) or an Integrated Services Digital Network **Primary** Rate Interface (ISDN PRI). ISUP is a signaling protocol which allows information to be sent from switch to switch as infori-nation parameters. An ISUP...manager to share management infori-nation stored in distributed databases.

The information services manager stores critical management information into operational (real-time) and analytical (historical) **distributed** databases. These databases provide common data storage so that new products can be easily inserted into the

management environment. For example, if an event is...and a microphone. Utilizing a multimedia equipped computer allows a user to use telephonic communication with little or no disruption while interfacing with the Internet. **Multimedia** computer speakers are used to receive the telephony audio from the network and the microphone is used to transmit the telephony data to the network...with capability parameter data to reflect the elements of one or more express electronic agreements between WAF participants in regards to the use of electronic **content** such as commercially **distributed** products. These control capabilities manage the use of, and/or auditing of use of, electronic content, as well as reporting information based upon content use... ...one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given **content** model (such as **distribution** of entertainment on CD-ROM, content delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would... ...nature of the WAFF capabilities that will and/or may apply to certain electronic information. A WAT content container is an object that contains both **content** (for example, commercially **distributed** electronic information products such as computer software programs, movies, electronic publications or reference materials, etc.) and certain control information related to the use of the... ...a WAF container available to other parties. Control infort-nation delivered by, and/or otherwise available for use with, WAF content containers comprise (for commercial **content distribution** purposes) WAFF control capabilities (and any associated parameter data) for electronic content. These capabilities may constitute one or more "proposed" electronic agreements (and/or agreement... ...more WAFF capabilities may be present at a WAF installation, and certain WAF agreements may have been entered into during the registration process for a **content distribution** application, to be used by such installation for securely controlling WAF content usage, auditing, reporting and/or payment. Similarly, a specific WAF participant may enter... ...in order to pay for user use of the content. A certain content provider might, for example, require metering the number of copies made for **distribution** to employees of a given software program (a portion of the program might be maintained in encrypted form and require the presence of a WAF... ...to formulate their transaction environment to accommodate.

(1) desired content models, content control models, and content usage information pathways,
(2) a complete range of electronic **media** and **distribution** means,
(3) a broad range of pricing, payment, and auditing strategies,
(4) very flexible privacy and/or reporting models,
(5) practical and effective security architectures... ...with steps (1) through (5) can enable most "real world" electronic commerce and data security models, including models unique to the electronic world.

WAFIs transaction **management** capabilities can enforce.

(1) privacy **rights** of users related to information regarding their usage of electronic information and/or appliances,

(2) societal policy such as laws that protect rights of content users or require the collection of taxes derived from electronic transaction revenue, and
(3) the proprietary and/or other **rights** of parties related to ownership of, distribution of, and/or other commercial **rights** related to, electronic information.

WAF can support "real" commerce in an electronic form, that is the progressive creation of commercial relationships that form, over time...content and/or business model. For example, WAF allows content creators to use the same WAF foundation control arrangement for both content authoring and for **licensing** content from other content creators for inclusion into their products or for other use. Clearinghouses, distributors, content creators, and other WAF users can all interact...can further comprise the step of the host computer detecting an inventory level threshold below which inventory of the article is to be restocked.

ELECTRONIC **LICENSE** DISTRIBUTION AND **MANAGEMENT**
Tracks user **license** entitlements
Creates an electronic license entry on backend systems
Sends ...has been made and the license obtained, the user cannot read the license terms prior to the request. In addition, this system lacks flexibility. To **change** the **licensing** terms, the code in the application must be revised.

Recently, generation and sales of software programs have become significant businesses both for companies which are... ...of the program to specified time periods. A problem arises particularly in digital data processing systems which have multiple users and/or multiple processors, namely, **managing** use of **licensed** software to ensure that the use is within the terms of the license, that is, to ensure that the software is only used on identified...still (from the point of view of the licensor) might actually permit such a usage without additional compensation to the licensor. One approach to network **licensing** is to grant permission to use the program based on all of the nodes on the network, and to require a license for each node...at a given time. These approaches, however, have usually required the cooperation of the licensee, because additional nodes may be added to the network, or **additional** users may utilize the software, without the knowledge of the licensor, who is typically not present on the premises of the licensee. The licensor may... ...to charge a license fee based on the maximum number of nodes that are permitted to use the software product concurrently.

This is called "concurrent **licensing**". In these environments, a computer program, acting as "librarian" and running on a computer node designated as a license server, is typically used to distribute... ...10, product on a requesting node, the node can be denied, at such time, access to invoke the software product.

Examples of software-based concurrent **licensing** arrangements may be found in Unix applications running in connection with software products sold under the trademarks NetLS (available from Gradient Technologies, Inc., 577 Main... ...to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,
(2) **content** use control, including electronic **distribution**,
(3) privacy (regarding, for example, information concerning parties described by medical, credit,
tax, personal, and/or of other forms of confidential information),
(4) management of...

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Country	Number	Kind	Date

Detailed Description:

...Key Performance hidicators etc. to assess the success of the market trial.

Service Launch
Develop, plan and manage the detailed network, systems, process and program **management** aspects of the launch of a "New Core" that is applicable for the network based on the strategy developed above. This ensures that the network... ...systems are be able to support the processes required for service creation and management in the "New Core". The network creation processes provides the program **management** tools to ensure that the launch is successfully executed.

68
These include entry and exit criteria for network creation, KPIs for quality management, program planning and **management** tool-kits.

Service Consolidation and Optimization
As the network operator moves into operating and maintaining the "NGN", there will be many parallel market driven journeys... ...creation process provides tools to assist the client into improving efficiencies of these parallel journeys. These optimization efforts will include organizational, process and technology driven **changes** to create efficiency based on consolidation of processes, as well as measurement tools to determine the success of such consolidation. The network architecture roadmap and...intelligence.

Figure 13 shows a block diagram of the Network Data Management 1300 in accordance with a preferred embodiment of the present invention. Network Data **Management** 1300 encompasses the collection of usage data and events for the purpose of network

performance and traffic analysis. This data may also be an input... ...performance degradation). This also includes thresholds and specific requirements for billing.

70
This includes information on capacity, utilization, traffic and usage collection.

In some cases, **changes** in traffic conditions may trigger **changes** to the network for the purpose of traffic control. Reduced levels of network capacity can result in requests to Network Planning for more resources.

Figure 14 is a flowchart illustrating a network data **management** process in accordance with a preferred embodiment. First, in step 1400, data is collected relating to usage and events occurring over a hybrid network. Next, in step 1402, the data is analyzed to determine a status of the hybrid network which in turn, in step 1404, is utilized during **management** of the hybrid network.

Further, in step 1406, billing rates and discounts are determined based on the status of the hybrid network.

In addition to... ...and, in step 1804, generates the customer reports accordingly based on the event received.

72
Figure 19 shows a block diagram of the Service Quality **Management** 1304 in accordance with a preferred embodiment of the present invention. The Service Quality **Management** Process 1304 supports monitoring service or product quality on a service class basis in order to determine.

Whether service levels are being met consistently
Whether...data is identified.

Figure 21 shows a block diagram of the Problem Handling Process 1502. The Problem Handling Process receives information from the Customer Interface **Management** Process 1500 and the Customer Quality of service **Management** Process 1302. It is responsible for receiving service complaints from customers, resolve them to the customer's satisfaction and provide meaningful
73
status on repair... ...provider in a professional and customer supportive manner.

Figure 26 is a flowchart illustrating an Invoice and Collections Process in accordance with a preferred embodiment. **First**, in step 2600, customer account inquiries and customer payment information is received by the system. Next, in step 2602, billing data, including discounts due to... ...of service violations and rebates due to service level agreement violations, is collected and processed. Thereafter, in step 2604, customer account invoices are created for **distribution** based on the customer payment infori-nation and the billing data.

Mediation and activity tracking are provided by the event logger and event manager. The...utilizes the information from the Discounting Process 1306 to create customer billing information.

76
To better understand the invention, it is useful to describe some **additional** terminology relating to a telecommunication network. A telephone call comes into a switch on a transmission line referred to as the originating port, or trunk...includes a computer usable storage medium having therein stored computer software and/or data.

80
Computer programs (also called computer control logic) are stored in **main** memory 2804 and/or the secondary memory 2806. Such computer programs, when executed, enable the computer system 2800 to perform the functions of the present...appropriate network, not necessarily the appropriate end user. Therefore, routers do not need to be huge supercomputing systems and are often 'ust machines with small **main** memories and little disk storage. The distinction between gateways and routers is slight, and current usage blurs the line to the extent that the two...then the callback subscriber is prompted to select another time or denied access to the resources for that time.

This is utilized to predict when **additional** ports and/or resources are required.

Fault Management
The NGN operations architecture specifies the points of insertion and collections for network wide events that feed...to provide universal information access by an object request broker. The object request broker allows the hiformation Services Manager to share management information stored in **distributed** databases. The Proactive Threshold Manager uses the information provided by the Information Services Manger to determine a current level of service and compare the current... ...provide ubiquitous infon-nation access via an object request broker (ORB). The ORB allows the infon-nation services manager to share management information stored in **distributed** databases.

The information services manager stores critical management information into operational (real-time) and analytical (historical) distributed databases. These databases provide common data storage so...with capability parameter data to reflect the elements of one or more express electronic agreements between WAF participants in regards to the use of electronic **content** such as commercially **distributed** products. These control capabilities manage the use of, and/or auditing of use of, electronic content, as well as reporting information based upon content use... ...one or more successive parties who receive or otherwise contribute to a given set of control information. Frequently, for a WAF application for a given **content** model (such as **distribution** of entertainment on CD-ROM, content delivery from an Internet repository, or electronic catalog shopping and advertising, or some combination of the above) participants would... ...nature of the WAFF capabilities that will and/or may apply to certain electronic information. A WAF content container is an object that contains both **content** (for example, commercially

distributed electronic information products such as computer software programs, movies, electronic publications or reference materials, etc.) and certain control information related to the use of the... ...a WAF container available to other parties. Control infori-nation delivered by, and/or otherwise available for use with, WAF content containers comprise (for commercial **content distribution** purposes) WAFF control capabilities (and any associated parameter data) for electronic content. These capabilities may constitute one or more "proposed" electronic agreements (and/or agreement...more WAFF capabilities may be present at a WAF installation, and certain WAF agreements may have been entered into during the registration process for a **content distribution** application, to be used by such installation for securely controlling WAF content usage, auditing, reporting and/or payment. Similarly, a specific WAT participant may enter... ...to formulate their transaction environment to accommodate.

(1) desired content models, content control models, and content usage information pathways,
(2) a complete range of electronic **media** and **distribution** means,
(3) a broad range of pricing, payment, and auditing strategies,
(4) very flexible privacy and/or reporting models,
142
(5) practical and effective security... ...steps (1) through (5) can enable most "real world" electronic commerce and data security models, including models unique to the electronic world.

WAF's transaction **management** capabilities can enforce.

(1) privacy **rights** of users related to information regarding their usage of electronic information and/or appliances,
(2) societal policy such as laws that protect **rights** of content users or require the collection of taxes derived from electronic transaction revenue, and
(3) the proprietary and/or other rights of parties related... ...confusion and expense and other inefficiencies of
different, limited purpose transaction control applications for each different content and/or business model. For example, WAF allows **content** creators to use the same WAF foundation control arrangement for both content authoring and for licensing content from other content creators for inclusion into their...can further comprise the step of the host computer detecting an inventory level threshold below which inventory of the article is to be restocked.

ELECTRONIC **LICENSE DISTRIBUTION** AND **MANAGEMENT**
Tracks user **license** entitlements
Creates an electronic license eiritry on backend systems
Sends electronic license to user
As shown in Figure 64, a method, system, and article of...code embedded in the application to establish the licensing attributes. Code is placed in the application which interprets information received from the server to establish **licensing** parameters. Because the behavior of the **license** is not established until after the request has been made and the

license obtained, the user cannot read the license terms prior to the request. hi addition, this system lacks flexibility. To **change** the **licensing** terms, the code in the application must be revised.

Recently, generation and sales of software programs have become significant businesses both for companies which are... ...of the program to specified time periods. A problem arises particularly in digital data processing systems which have multiple users and/or multiple processors, namely, **managing** use of **licensed** software to ensure that the use is within the terms of the license, that is, to ensure that the software is only used on identified...If many of the end users at a company intend to use the software, for example, then a site license may be the most appropriate **distribution** system because it may be the low-cost option. If the software only will be used by a few workers, however, then a CPU-locked **distribution** system may be more appropriate. The trade-off point is determined by the relative pricing between the two **distribution** systems.

For environments where many users need the software but only spend a portion of their time using it, neither a dedicated CPU-locked license... ...only one central processing unit (CPU) in connection with operation of the software product.

Although many such licenses are for indefinite periods of time, a **license** may also be for a limited duration and extendable, so that the entity marketing the product can charge a periodic fee (for example, annually) for... ...product running at another node (which may be the network server or even another workstation).

Consequently, the terms of the single-computer type of software **license** might not cover the usage of the software product on the network, or worse still (from the point of view of the licensor) might actually...to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,
(2) **content** use control, including electronic **distribution**,
(3) privacy (regarding, for example, information concerning parties described by medical, credit,
tax, personal, and/or of other forins of confidential information),
(4) management of...or currency usage and administration capabilities, (d) privacy protection for usage infori-nation a user does not wish to release, and (e) "living" electronic information **content** dissemination models that flexibly accommodate.

(1) a breadth of participants,
(2) one or more pathways (chains) for: the handling of content, content and/or...

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Patent				19

Detailed Description:

...for successful use.

Client server applications can provide response times necessary to support transaction intensive mission critical systems. Application logic and business data can be **distributed** between the client and server for optimal efficiency. Web-based interfaces still have an inherent overhead due to the connectionless communication and constant downloading of...application environment.

Allows rapid development "out-of-the-box"
Decreased communication overhead because of a direct connection (for a small number of users)
Allows the **distribution** of the program's logic (application, presentation, data management)
Limitations of Two-Tiered Architecture
64
The use of two-tier tools has resulted in a...consist of heavy data entry, transaction processing, or a large user base.

How much does the tool cost?
Product components, maintenance agreements, upgrades, run-time **licenses**, and add-on packages should be considered.

Does the product integrate with other tools and/or support other tools in the development and execution environments...number of enhancements for extending Web technology come under scrutiny by Internet standards groups. These enhancements will ultimately push the Web into the realms of **distributed** document processing and interactive **multimedia**.

SGML: in the beginning...

Although the World Wide Web was not created until the early 1990s, the language behind it dates back to the genesis...apply to record oriented data. A document is defined as a collection of objects potentially of different types (e.g., structured data, unstructured data, images, **multimedia**) a business user deals with. An individual document might be a table created using a spreadsheet package such as Microsoft Excel, a report created

using...while waiting for a response to a request.

What's the clients position on DCE?
133
DCE software, developed by Open Systems Foundation (OSF), is **licensed** to OSF-member companies to form products that provide common services. The RPC is one of several DCE common services. Some clients may desire to...middleware technology based on an event-driven publish/subscribe model for information distribution. Developed and patented by TIIBCO, the event-driven, publish/subscribe strategy allows **content** to be **distributed** on an event basis as it, becomes available. Subscribers receive content according to topics of interest that are specified once by the subscriber, instead of...with the server.

IMAP4 includes standards for message handling features that allow users to download message header information and then decide which e-mail message **contents** to download.

Implementation considerations
A number of E-mail servers from vendors including B:P and Netscape are built around SMTP, and most proprietary protocol...needs of their users. Forming a common pattern language for conveying the structures and mechanisms of architectures allows us to intelligibly reason about them. The **primary** focus is not so much on technology as it is on creating a culture to document and support sound engineering architecture and design.

What is...

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	Country	Number	Kind	Date
Patent				19

Detailed Description:

...above, are arranged for display in operation 62. Examples of primary components shown in Figure IL include "Security Services", "Commerce", and "Data Services". Preferably, the **primary** components are grouped under descriptive headings, as in operation 63. Examples of such headings shown in Figure IL are "Web Application Services" and Common Web...As shown in operation 16 of Figure 1A, the indicia coding

may be further employed to indicate priority of implementation for components of the system. **First**, a priority is identified among the plurality of components required for implementation of a predetermined technology. See operation 36 of Figure 1D. To accomplish this... ...operation 36a. Priority may be determined based on a requirement that certain components be in place before other components will perform properly. In such case, **primary** components, which should or must be installed before other **secondary** components will function properly, are positioned forward of, or in an otherwise prioritized relation to, the. **secondary** components in the listing in operation 36b. Further, any tertiary components that should or must be installed after a particular secondary component should be positioned... ...back to Figure 1D, a pictorial representation of the existing network framework and its components is generated in operation 37. Operation 38 indicia codes a **first** component or components of the existing network ftamework in order to indicate that the first component is a primary component, as selected in operation 36b... ...as determined in operation 36c, and must be implemented after the first component. For example, second components which should be provided only after other necessary **first** components are in place may be distinguished from the primary components by having indicia coding unique with respect to the indicia coding of the first...system. In operation 51b, components of the existing system that are used for building the components of the system are selected and placed in a **first** group of components in the **first** area of the database. These components are indicia coded on the pictorial representation in operation 51 of Figure 1H. In operation 51c, components of the...management for networks of up to 100 nodes.

Product features include the following.

" Monitoring of events and network health for
multiple local and remote environments
Distribution of management data
Management of file systems, print queues and
user groups
t: Balancing of management processing loads
across e network
24
Development Business 1...be created.

Sun's Java language has emerged as an industry-recognized language for "programming the Internet." Sun defines Java as: "a simple, object-oriented, **distributed**, interpreted, robust, secure, architecture-neutral, portable, high-performance, multithreaded, dynamic, buzzword-compliant, general-purpose programming language. Java supports programming for the Internet in the form...Managing project interdependencies to ensure delivery of the capability release.

Ensuring that resources are used effectively across projects for the release.

As with many other **management** responsibilities described in IDEA, Release Management is more a role than a function. It is good practice to have as many areas as

possible represented...be integrated with an upper
case design tool and the other with a lower-case generation tool
0 In a multisite environment, repositories may be **distributed** over different locations. In order to keep these repositories synchronized, well defined development processes must be implemented.

Repository Management can be divided into the following areas.

Security
Maintenance
Validation and mass **change**
Analysis, reporting, and querying
Security
Restricted access to various repository object types is necessary to ensure high quality repository content, because developers sometimes take shortcuts...testing, the system should be technically sound, and data flow throughout the system should be correct. Component and assembly testing ensures that all transactions, database **updates**, and conversation flows function accurately.

Testing in later stages will concentrate on user requirements and business processes, including work flow.

89
d) Are benefits being...specific task or set of tasks in the development process. As with processes and organization, the central component, System Building, is supported by the eight **management** components.

91
Information **Management** tools 202 **manage** the information that supports
the entire project - information that is used both in systems building and in other **management** processes
0 Security **Management** tools 216 enable the development of security
components
Quality **Management** tools 204 support all quality **management** processes
Program and Project Management tools 214 assist the management
teams in their daily work
0 Environment Management tools 206 provide the facilities to maintain the
development environment
0 Release Management tools 218 **manages** the simultaneous development of
multiple releases
" Configuration **Management** tools 210 cover the version control,
migration control and **change** control of system components such as code and its
associated documentation
0 Problem Management tools 212 pertains to the problem tracking and
solution process
In... ...appropriate security controls accordingly.

0 Is communication outside the local environment necessary?
9 Is remote access required?
If so, a gateway will be required to **manage** communication beyond the local environment. This will bring with it security implications, as the local environment will no longer be isolated.

b) Do e-mail...ensure that the anticipated benefits of electronic mail and teamware materialize.

For example, certain teamware databases require continuous maintenance in order to remain relevant. The **management** of the database contents may require significantly more work than either the initial installation of the tools or the technical support for the tools. This... ...the system, interest will soon dwindle, and the system will no longer be of any value.

Group Schedulin (142)
Group scheduling tools help to centrally **manage** the personal schedules of a group of people. This offers the advantage of being able to coordinate events that require the participation of a number...deliver integrated environments.

98
Workflow Management (150)
When processes become complex and require the participation of multiple groups, simple integration techniques are not adequate for **managing** the process flow. standards development.

Implementation Considerations
Efficient tools support for Workflow Management requires standards and procedures that specify.

0 Which tasks exist
0 Expected...the repository. Typically, the developers will be placed in groups with diminishing access rights such as repository administrator, technical support, designer, or programmer. These access **rights** may relate to read/write/modify/delete authority. This method of access control is far more flexible than simple object locking.

h) Does the toolprovide...is usually supported by the tools.

118
Product Considerations
a) Does the toolprovide capabilities to caterfor a system running on multiple pla@forms or a **distributed** system?
Ideally, the Version Control tool must be able to operate on all the platforms in use, whilst at the same time performing Version Control...correct locking and unlocking of repository objects and source modules.

Implementation Considerations
a) Does the project require strict scope control?
Specifications and scope may be **changed** at any time if Change Control tools and standards are not implemented. This can result in the project running over budget, or being delivered late... ...the application. Change requests may also be rejected or deferred by an authorized person.

d) Is coordination of changes required?
Facilities to track interdependencies between **change** requests (for example, **change** request A must be completed before **change** request B can start) are provided by **Change** Control tools. This can be used to encourage efficient scheduling and to ensure that work is not duplicated.

e) Should a record be kept of... ...be implemented effectively.

Multiple changes may affect the same component and it would be wasteful to open that component many times over and implement the **changes** one at a time. Impact analysis can be used to ensure that all relevant changes to that component are implemented together.

Hence impact analysis is...the Knowledge Xchange.

Data and Software Distribution is a key tool in this category for development environments that have several developers. These tools enable automated **distribution** of data and software to the workstations and servers in the development environment.

Problem Management (212)
Problem Management tools help track each system investigation request...how well the product integrates with other design and development tools, presentation services (graphics, multi-media, etc.), data access services (databases and database API libraries), **distribution** services (**distributed** TP monitor), transmission services (SNA, HLLAPI, etc.), data dictionary, desktop applications, and programming languages for call-out/call-in. Additional consideration should be given to...In the majority of Integrated Development Environments, the Compiler, Linker and/or Interpreter are included as an integral part of the system. In addition, the **management** of compilation and linking is automated using MAKE utilities which understand the dependencies between modules in the systern. This allows the system to trigger all...when using a source code debugging tool?
Communication between development team and testing team
A code analysis tool can help the testing team detect unreported **changes** in the application code, and therefore help alleviate possible bad communications between the development and testing teams. Thus, bad communications between teams will still influence...quality system. Therefore, dealing with a highly critical engagement will most likely affect positively the decision to use tools such as Test Planning, test data **management**, problem **management**, and configuration management.

e) What applicationfactors should be considered when using a Test Planning tool?
Starting point of automation in the development life cycle
If...data generation, event processing, and repositories components and then send data to the presentation or repositories components.

Management applications tools include capacity planning tools, performance **management** tools, **license management** tools, remote **management** tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Enterprise Management tools even poll the event/data generators for information but these options...knowledge and experience at the user locations. The level of technical expertise within the Incident Management function will drive the systems requirements.

Problem Management
Problem **Management** utilizes the skills of experts and support groups to fix and prevent recurring incidents by deten-nining and fixing the underlying problems causing those incidents...

10/K/13 (Item 6 from file: 349)
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Country	Number	Kind	Date

Detailed Description:

...codes a second component and any remaining components of the existing network framework in order to indicate that the second component and remaining components are **secondary** components, as determined in operation 36c, and must be implemented after the first component. For example, second components which should be provided only after other necessary first components are in place may be distinguished from the **primary** components by havingindicia coding unique with respect to the indicia coding of the first components, and likewise for tertiary components, etc.

Further, indicia coding may...of the application server, with the ability to configure a range of properties for each server component and the processes within them. It can also **distribute** components across multiple systems and manage multiple configurations.

The Productl product family may be extended through these

components.

PAC SDK -- Productl platform that allows
developers... ...tools that allow users to
communicate in a heterogeneous environment of Businessl Product3 A secure, standards-based web server for accessing, 1.5 managing, and **distributing** information over the Internet, extranets, or
intranets. Product3 supports Java servlet development and network
caching of web pages.

Product3 simplifies management of website environments
through delegation of administrative privileges such as access **rights** to
administer meta-data components or load-balancing.

Java Web Server The **first** commercially available Java service based on the
JavaServer API framework for Java servIets. It uses serviet
technology to enable server-side Java applications and provides...from
Tools consuming all available bandwidth, it ensures the quality of
service to users and network availability to applications.

Product6 Enterprise Manager - Business I's
distributed network management foundation that manages large
heterogeneous networks. Product6 Enterprise Manager supports
and manages Java applications built for various network types.

Product6 Site Manager & Product6... ...for networks of up to I 00 nodes.

Product features include the following.

Monitoring of events and network health for
multiple local and remote environments
Distribution of management data
Management of file systems, print queues and
user groups
Balancing of management processing loads
across the network
Business I offers a variety...project, they should work as facilitators - helping the designers do things correctly the first time, thereby maintaining the integrity of the repository. Without strong repository **management**, the benefits of using a repository quickly diminish.

In many situations the Information Management team must make decisions that affect functional areas. To empower the... ...include.

Reviewing designs
Packaging classes and components for reuse

Managing maintenance and upgrades of common components (a strong relationship with Configuration Management team is required)
Media Content Management
The methods of handling **media content** are somewhat different from those surrounding more traditional development content such as code or documentation, for this reason, a role should be defined that is...more creative and attractive user interfaces, but also reduces the risk of further alteration to work at a later stage.

b) Usability
Often coupled with **Media** Content Design, it is vital that a role for usability is defined within the Application Development teams. This will ensure the usability of the system...are run and fixes implemented, migration can become complex, requiring flexible mechanisms for locking and unlocking system components and analyzing the 1 5 impacts of **change**.

" Information **management**, and in particular repository **management**, guarantees a correct view of the interrelationships between system components. This is required to ensure that impact analyses are complete and correct, which, in turn...
...system test environment)
Run test cycle
Compare expected results and actual results
0 Log System Investigation Requests (SIRs)
4' Analyze deviations and identify components requiring **change** (either expected results, test-data, or system components)
Define **Change** Requests (CRs) and perform impact analysis
Package those **change** requests that affect the same areas and that naturally belong together, into change packages
Schedule and staff the changes
Unlock components for change
81
Perform changes and refine impact analysis based on added understanding
Verify changes before re-submitting to system test
Migrate to system test based on **updated** impact analysis and re-lock components
Implementation Considerations
a) What model o testing does thefirmfollow?
?f
The following is an overview of the firm's...testing, the system should be technically sound, and data flow throughout the system should be correct. Component and assembly testing ensures that all transactions, database **updates**, and conversation flows function accurately.

Testing in later stages will concentrate on user requirements and business processes, including work flow.

d) Are benefits being... ...Project Management tools 214 assist the management teams in their daily work
" Environment Management tools 206 provide the facilities to maintain the development environment
" Release **Management** tools 218 **manages** the simultaneous development of multiple releases
" Configuration Management tools 210 cover the version control, migration control and change control of system components such as code...a reduction in training costs.

c) Does an existing component satisfy this requirement?
Engagement teams sometimes choose tools that provide multiple development functions, including Configuration **Management** tools. The decision to choose between available Configuration Management tools may already have been decided as a result of using certain other tools within the... ...configuration?
The components involved in Configuration Management typically involve hardware, system software, and application components together with their documentation.

The tools should be able to **manage** and keep track of all the component types that make up a configuration.

e) Does the toolprovide capabilitiesfor exception reports?
If for some reason a...the system can be tracked.

The tools usually provide a facility to report on differences in versions so the version that existed when a critical **change** was made can be identified and recreated or retrieved. The tools can also provide a means of documenting why decisions are made during the evolution... ...and is usually supported by the tools.

Product COnNiderations
a) Does the toolprovide capabilities to caterfor a system running on multiple pla@forms or a **distributed** system?
Ideally, the Version Control tool must be able to operate on all the platforms in use, whilst at the same time performing Version Control...a) Does the tool support the migration of all the components that make up a migration object?
The Migration Control tool should be able to **manage** and control the migration of a] I the components (for example, source code, database access, make files, run-time data, environment variables, code libraries, code...by such unauthorized access, and to audit access the environment services. At the security management level, it may be valuable to have tools which help **manage** security profiles, security groups, and access rights.

Product Considerations
a) Does the tool use Role- based access control?
Role-based access control establishes access rights and profiles based on job functions

within the environment. If different access **rights** are required for security administrators vs. code developers vs. code reviewers vs. testers, then the correct access can be established based on these functions.

b... ...the Knowledge Xchange.

Data and Software Distribution is a key tool in this category for development environments that have several developers. These tools enable automated **distribution** of data and software to the workstations and servers in the development environment.

Problem Management (212)
Problem Management tools help track each system investigation request...does not always guarantee their quality. In order to minimize the dependency of the final system on these components (thus reducing the impact of possible **changes** within the libraries), it is
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recommended that wrappers are written to enclose any third-party components. This way, if any **changes** are made to the internals of the components, only the wrappers would be affected, allowing the application and architecture code to remain unchanged.

Frameworks may... ...for developers, there may be the tendency for people to download their own preferred tools, or upgrades to standard tools. This not only affects the **management** of the development environment, but could easily result in the generation of code that is incompatible with the rest of the code in the development...Internet and kiosk-based systems, where users have a notoriously short concentration span.

This requirement for more attractive user interfaces has triggered the evolution of **media**-rich applications, the development of which requires new tools and processes, and brings with it a whole new set of issues.

Media content can be...Execution Architectures, every function of the Operations Architecture must be reviewed. All components of the Operations Architecture are integral to the successful management of a **distributed** environment. Any processes, procedures, or tools developed or chosen as an operational management solution for a specific operational area must be able to integrate with... ...individuals who will be performing the function should be involved in the design of how the function will be performed.

Will thefunction be centralized or **distributed**?
Central control will mean a stronger focus on remote management, with skills focused in one place, whereas **distributed** control will mean skills will need to be more widely dispersed. **Distributed** functions may require less powerful tools due to their placement.

Will the solution be manual or automated?
A number of functions could be managed manually...the system. Event Management receives, logs, classifies and presents event messages on a console(s) based on pre-

established filters or thresholds.

MANAGEMENT APPLICATIONS (1320)
Management applications are those tools which are used to **manage** the system.

Most of the MODE functions tie directly into this component. The management applications component ties in directly with the integration platform component as... ...data generation, event processing, and repositories components and then send data to the presentation or repositories components. Management applications tools include capacity planning tools, performance **management** tools, **license management** tools, remote **management** tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Enterprise Management tools even poll the event/data generators for information but these options... ...as well as the key data items specified in the data requirements section. Data and time stamps should be automatically registered and Incident and Request **management** staff should have access to display all open incidents and requests as well as the incident/request history for a specific user location.

Progress Incidents...activities are performed and controlled as required and as intended.

Production Scheduling
Production Scheduling determines the requirements for the execution of scheduled jobs across a **distributed** environment. A production schedule is then planned to meet these requirements, taking into consideration other processes occurring throughout the distributed environment (e.g., software and data **distribution**, remote backup/restoration of data.) It plans the production workload and then submits the tasks to the system in the proper sequence, ...determined for the execution of scheduled jobs across the environment.

Does and existing component satisfy this requirement?
Production Scheduling contains specific requirements that addresses a **distributed** environments complexity of multiple platforms and system placed in either a parallel or serial fashion.

What other utilities are available with the tool?
The tool...

Dialog eLink: Order File History
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	Country	Number	Kind	Date
Patent				19

Detailed Description:

...a web architecture framework.

SUMMARY OF THE INVENTION
A system, method, and article of manufacture are provided for prioritizing components of an existing network framework. **First**, a priority is determined among a plurality of components required for implementation of a predetermined technology using an existing network framework. The existing network framework...to a specific web architecture framework of the present invention will be described.

As shown in Figure 1A, the presentation method of the present invention **first** includes displaying a pictorial representation of a system, i.e. web architecture framework, including a plurality of components. Note operation ...the first component. For example, second components which should be provided only after other necessary first components are in place may be distinguished from the **primary** components by having indicia coding unique with respect to the indicia coding of the first components, and likewise for tertiary components, etc.

Further, indicia coding...the existing system that are used for building the components of the system are selected and placed in a first group of components in the **first** area of the database. These components are indicia coded on the pictorial representation in operation 51 of Figure 1H. In operation 51c, components of the ...of the application server, with the ability to configure a range of properties for each server component and the processes within them. It can also **distribute** components across multiple systems and manage multiple configurations.

The Productl product family may be extended through these components.

PAC SDK -- Productl platform that allows developers... ...allow users to communicate in a heterogeneous environment of Business I Product3 ---I- A secure, standards-based web server for accessing, 1.5 managing, and **distributing** information over the Internet, extranets, or intranets. Product3 supports Java servlet development and network caching of web pages.

Product3 simplifies management of website environments through... ...information such as user definitions, user profiles, network resource definitions, and configuration parameters. It employs naming, directory, and authentication protocols on top of a shared, **distributed**,

object repository. Users and applications can use the directory to
locate and access information from anywhere in the network.

JavaWallet Java Electronic Commerce Framework (JECF...for thousands of users.

Server
26
ha A newsgroup server that provides collaboration services
through discussion groups. Business2 Chat Server also supports the
moderation of **content** and administration of discussion groups.

Bussiness2 An email server that delivers messages with embedded sound,
graphics, video files, HTML forms, Java applets, and desktop
Messaging...responsible for ensuring the quality of the system building process. The Quality team is also directly involved in ensuring the quality of the other IDEA **management** processes.

Program & Project **Management**
The Program Management team is responsible for delivering business capability.

In this respect, it is responsible for the System Building and other management teams. In...Application team evolves as the development process continues - as the development of the application architecture components is completed, the Application Architecture team's roles may **change**. While the team continues maintaining the application architecture components, some team members may be deployed to the Application Development team. Here their roles can include...organization - the higher the life expectancy, the more standards are justified
volatile :ne Attrition - a stable organization can tackle more detailed standards than a
" Expected **change** in the environment - a high rate of change provides
greater opportunity to reap the benefits of a standardized approach
Procedures specify how to perform a...i.e. encapsulate them so that the visible piece of any component remains fully controlled. This way, when a component is replaced (either for an **update** or because it has proved to be defective), no other system components that refer to that component will need to be altered.

Construction (134)
Construction...test cycles are run and fixes implemented, migration can become complex, requiring flexible mechanisms for locking and unlocking system components and analyzing the impacts of **change**.

* Information **management**, and in particular repository **management**,
guarantees a correct view of the interrelationships between system components. This is required to ensure that impact analyses are complete and correct, which, in turn, makes for effective regression testing.

* Quality **management**, together with well-defined standards and procedures, ensures

that the outputs from each test activity are documented at the right level of detail and fed... ...the system test environment)
Run test cycle
Compare expected results and actual results
0 Log System Investigation Requests (SIRs)
" Analyze deviations and identify components requiring **change** (either expected results, test-data, or system components)
Define Change Requests (CRs) and perform impact analysis
Package those change requests that affect the same areas and that naturally belong together, into change packages
Schedule and staff the **changes**
Unlock components for **change**
Perform **changes** and refine impact analysis based on added understanding
Verify changes before re-submitting to system test
Migrate to system test based on updated impact analysis...Configuration Management tools 210 cover the version control,
migration control and change control of system components such as code and its associated documentation
0 Problem **Management** tools 212 pertains to the problem tracking and solution process
In addition, three other components are required to fully support development.

* Productivity tools 1002 provide...the Collaboration Architecture Framework in the Technology Library.

Implementation Considerations
a) How distributed are the project teams?
On projects with development sites that are geographically **distributed**, it is usually the case that communication by e-mail alone is not a sufficient substitute for meetings when attempting to coordinate the teams involved...the number of objects, files, or components. The management of these items becomes increasingly difficult to manage and track during the development process. The Configuration **Management** tool provides structure for **managing** the objects, files, and components and reduces the risk of lost information caused by version problems, or by items not being migrated properly.

d...to a change request.

Does the tool provide a means of indicating which development team member is best suited to perform the implementation of that **change** request?
This functionality should be available as part of the scheduling capability. An added feature would be the capability to balance workload across the team...the interface with developers.

As defined in MODE, these include the following.

Tools to support and manage the Help Desk
Tools to support the creation, **management**, and reporting of Service Level
114
Agreements (SLAs) and Operations Level Agreements (OLAs)
0 Tools to **manage** and support the quality of the development environment
Systems Management (126)
Systems Management Tools support and manage the operation of the **distributed** system. Many specific monitoring and analysis tools are covered in detail in theNetwork Performance Management practice aid and the Technology Products and Vendors database, both...which can be used to clarify and communicate issues.

Product Considerations
a) How much does the tool cost?
Product components, maintenance agreements, upgrades, run-time **licenses**, and add-on packages should be considered.

b) Will the design tool be usedfor programming of client applications? What programming language is supported?
If the...server or Netcentric) remains a complex task because of the large number of integrated components involved (for example, multiplatform clients, multiplatform servers, multitiered applications, communications, **distributed** processing, and data), which, in turn, results in a large number and variety of Testing tools.

For any large scale testing effort, it is vital... ...over the test data for the various testers), a configuration management tool (easier control over all system configurations and component versions), and a test plan **management** tool (easier control over all test cycles, subcycles, their execution statuses, and so on).

b) What engagementfactors affect the use of Test Data Management tools...a stronger focus on remote management, with skills focused in one place, whereas distributed control will mean skills will need to be more widely dispersed. **Distributed** functions may require less powerful tools due to their placement.

Will the solution be manual or automated?
A number of functions could be managed manually...and correct the fault. Although it may be possible to automate this process, human intervention may be required to perform at least some of these **management** tasks.

EVENT / DATA GENERATION (1314)
Event/data generation interacts with all the managed components in the execution and development environments in order to obtain the... ...data generation, event processing, and repositories components and then send data to the presentation or repositories components. Management applications tools include capacity planning tools, performance **management** tools, **license management** tools, remote **management** tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Enterprise Management tools even poll the event/data generators for information but these options

may impact network performance. Web Server **management** is been introduced as part of the **management** operations framework. As Corporate Internets and Extranets implement Web based software products to sell and advertise business services, corresponding administrative, security, event notification and performance...are performed and controlled as required and as intended.

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Production Scheduling
Production Scheduling determines the requirements for the execution of scheduled jobs across a **distributed** environment. A production schedule is then planned ...determined for the execution of scheduled jobs across the environment.

Does and existing component satisfy this requirement?
Production Scheduling contains specific requirements that addresses a **distributed** environments complexity of multiple platforms and system placed in either a parallel or serial fashion.

What other utilities are available with the tool?
The tool... ...the
distribution process
0 Notifies the service level management facility of any missed service commitments.

0 Communicates with the documentation management facility to obtain the **distribution** information, **media** type and service level commitments.

0 Communicates with the ...with the flip of a power switch on a workstation. Processes which rely on the system being up and running (e.g., software and data **distribution**) may fail if a user has switched his/her machine off before leaving for the evening. Such failures will impact the following days processing capabilities...

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Country	Number	Kind	Date

Detailed Description:

...such headings shown in Figure 1L are "Web Application Services" and Common Web Services".

Each of the primary components is formed of a group of **secondary** components. In operation 64, each set of **secondary** components is positioned towards or over each of the primary components in such a manner that a viewer would visually associate a group of secondary...in order to indicate that the second component and remaining components are secondary components, as determined in operation 36c, and must be implemented after the **first** component. For example, second components which should be provided only after other necessary first components are in place may be distinguished from the primary components... ...unique with respect to the indicia coding of the first set of components. Such second set of components may include some or all of the **secondary** components found in operation 41b. Referring to Figure 1P, an exemplary first set of components is identified in the legend under "First Delivery". In Figure...debit cards, electronic cash and checks, and smart cards.

The initial component of the JECIF is the JavaWallet, a client side application that will be **distributed** as a core component of the Java environment. JavaWallet will allow users of any Java-enabled web browser or operating system to purchase goods and...true of the development environment. When a new development environment is put in place, the developers need to learn not only how each individual tool **works** (for example, how to use the compiler), but also how the tools work together to support the organization as it performs well defined processes.

The... ...Figure 3 is an illustration showing a security organization according to one embodiment of the present invention. A Security Management Team may have a security **management** 300, under which are an administration team 302, a projects & planning team
39
, and a business process security team 306. The size of the Security... ...manage this population process. Rather than taking a policing role on the project, they should work as facilitators - helping the designers do things correctly the **first** time, thereby maintaining the integrity of the repository. Without strong repository management, the benefits of using a repository quickly diminish.

In many situations the Information...i.e. encapsulate them so that the visible piece of any component remains fully controlled. This way, when a component is replaced (either for an **update** or because it has proved to be defective), no other system components that refer to that component will need to be altered.

Construction (134)
Construction...belong together, into change packages
Schedule and staff the changes
Unlock components for change
Perform changes and refine impact analysis based on added understanding
Verify **changes** before re-submitting to system test
Migrate to system test based on **updated** impact analysis and re-lock

components
Implementation Considerations
a) What model of testing does thefirmfollow?
The following is an overview of the firm's testing...well understood that both good communication and knowledge sharing are vital for the success of any team. As development projects get bigger and teams more **distributed**, it becomes increasingly difficult to maintain communication between project team members. Collaborative tools have been developed with this very purpose in mind - to enable groups... ...collaboration may be found in the Collaboration Extensions Framework in the database, and the Collaboration Architecture Framework in the Technology Library.

Implementation Considerations
a) How **distributed** are the project teams?
On projects with development sites that are geographically **distributed**, it is usually the case that communication by e-mail alone is not a sufficient substitute for meetings when attempting to coordinate the teams involved... ...to send simple ASCII text, e-mail systems usually provide the capability to attach binary files to messages, E-mail is a convenient tool for **distributing** information to a group of people, as it has the advantage of delivering content directly to the 'mailbox' of each individual, rather than relying on...located?
Configuration Management tools are essential when development teams are not centralized at one location. These tools provide services, such as version control, when geographically **distributed** teams need to access common modules or data, such as code tables. Configuration Management tools may still be necessary even if ...migrated properly.

d) Is the development effort to be sustained over a prolongedperiod?
Over time, a large number of configurations will evolve and Configuration **Management** tools can be used to control the evolution and to document these configurations.

e) Is there a large number of components?
It may be necessary... ...needed once the system becomes large and many modules (which may include programs, header files, copybooks, shared components, subroutines, and so on) have to be **managed**. There is a significant cost involved in formal configuration **management**. If the system has a little over 100 modules, the Configuration Management component may consist merely of awhiteboard or Excel spreadsheet. As the number of...automated and is usually supported by the tools.

Product Considerations
a) Does the toolprovide capabilities to caterfor a system running on multiple plafforms or a **distributed** system?
Ideally, the Version Control tool must be able to operate on all the platforms in use, whilst at the same time performing Version Control...across the team.

e) How does the tool handle exceptions?

The tool should provide a capability to generate exception reports that highlight issues such as **change** requests that are in danger of not meeting the release to which it was allocated.

fi What is the prediction for volume of change requestsfor...0 Tools to manage and support the quality of the development environment
Systems Managemen (126)
Systems Management Tools support and manage the operation of the **distributed** system. Many specific monitoring and analysis tools are covered in detail in the Network Performance **Management** practice aid and the Technology Products and Vendors database, both available on the Knowledge Xchange.

Startup & Shutdown
A comprehensive development environment rapidly becomes sufficiently complex...manage security profiles, security groups, and access rights.

Product Considerations
a) Does the tool use Role- based access control?
Role-based access control establishes access **rights** and profiles based onjob functions within the environment. If different access rights are required for security administrators vs. code developers vs. code reviewers vs. testers...be used to clarify and communicate issues.

Product Considerations
a) How much does the tool cost?
1 5 Product components, maintenance agreements, upgrades, run-time **licenses**, and add-on packages should be considered.

b) Will the design tool be usedforprogramming of client applications? What programming language is supported?
If the design...the impact of possible changes within the libraries), it is recommended that wrappers are written to enclose any third-party components. This way, if any **changes** are made to the internals of the components, only the wrappers would be affected, allowing the application and architecture code to remain unchanged.

Frameworks may...on the same team using tools which employ different version of the JDK).

Product Considerations
a) What size is the development team?
When IDEs were **first** developed, they were targeted at individual developers. This means that support for team development is still not fully mature in the majority ofIDEs, although some...are involved, it is important that they are fully integrated into the team.

For both image and audio, it is possible to purchase re-usable **content** from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage media content (and storage formats) are discussed in...plan management tool (easier control over all test cycles, subcycles, their execution statuses, and so on).

b) What engagementfactors affect the use of Test Data **Management** tools?
Risk rating of the engagement
In general, **management** and planning tools help better address the engagement risks. A high risk rating for the engagement will affect positively the decision to use tools such...individuals who will be performing the function should be involved in the design of how the function will be performed.

Will thefunction be centralized or **distributed**?
Central control will mean a stronger focus on remote management, with skills focused in one place, whereas distributed control will mean skills will need to...not get lost as they are passed around support
teams
informing users when incidents have been resolved and ensuring resolution was complete.

In addition, Incident **Management** is responsible for ensuring that outstanding incidents are resolved in a timely manner. As part of Incident Management, incidents are reviewed, analyzed, tracked, escalated as... ...a disaster) has occurred.

Fault Management-(1312)
When a negative event has been brought to the attention of the system, actions are undertaken within Fault **Management** to define, diagnose, and correct the fault. Although it may be possible to automate this process, human intervention may be required to perform at least... ...the management applications tools must comply with the standards set by the integration platform. For example, if the integration platform is HP OpenView, then the **management** applications must be HP OpenView software (API, SNMPx) or hardware (card) compliant.

Management applications receive data from the event/data generation, event processing, and repositories components and then send data to the presentation or repositories components. Management applications tools include capacity planning tools, performance **management** tools, **license management** tools, remote **management** tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Enterprise **Management** tools even poll the event/data generators for inforination but these options may impact network performance. Web Server management is been introduced as part of...174
Recoyjpry
Recovery manages all of the actions needed to restore service delivery after a system failure. With critical business applications being rolled out on **distributed** technologies, the recovery of these systems must be easy, quick and efficient to guarantee availability of core business systems as expressed in the agreed service... ...of scheduled jobs across a

distributed environment. A production schedule is then planned to meet these requirements, taking into consideration other processes occurring throughout the **distributed** environment (e.g., software and data **distribution**, remote backup/restoration of data.) It plans the production workload and then submits the tasks to the system in the proper sequence, stops processing upon...workload
from one processor to another in the event of a system failure.

Print Managemen
Print Management monitors all of the printing done across a **distributed** environment and is responsible for managing the printers and printing at both central and remote locations. The purpose of a print architecture is to make... ...performed in off-hours or delayed to avoid contention for the printer during business hours.

What are some limitations that may be encountered?
In a **distributed** environment the sizing and routing of print traffic is more complex.

With new systems being installed, only educated guesses about how and when printing will... ...bottlenecks in the
distribution process
" Notifies the service level management facility of any missed service commitments.

" Communicates with the documentation management facility to obtain the **distribution** information, **media** type and service level commitments.

" Communicates with the recovery management facility to delete reports that will be recreated.

0 Communicates report volumes to the resource...Some limitations that may need to be taken into account?
System startup and shutdown is no longer confined to a centralized site. The system is **distributed**, in effect creating islands of technology which may be started or shutdown with the flip of a power switch on a workstation. Processes which rely... ...checking or virus detection/correction.

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Mass Storage Managernen
Mass Storage Management involves those activities related to the handling of various types of centralized and **distributed** storage **media** including the monitoring and controlling of storage resources and their usage.

The objectives of Mass Storage management are to: implement the top level of storage... ...in a distributed environment than in a centralized environment since many more storage options become available, as storage may take place centrally or on a **distributed** basis and the number and characteristics of storage devices have increased.

Implementation Considerations
What DBMS will be used and what utilities does it have?
1... ...be simpler then for distributed databases were a global view becomes more difficult to obtain, and where data consistency becomes more of an issue.

What **media** types will be used?
It is essential that the types of device to be used are understood before detailed decisions are taken.

Distributed Environmental Constraints...

Claims:

...ement Fault @j Disaster
F Release Control1308 Ed management RecoveryL)robiern managementnAssetManagementana emenJ,@equestmanaqernentRollout131 O F **License** 133Sysiurns **Management** planning **Management managementI** Admirdstrabot CkUP//tailu'r'e Control: Capad Modeling and PlawingMans RestoreManagement1 3 1 ore Database Database 1340:Production Control'- acku /Res...

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	Country	Number	Kind	Date
Patent				19

Detailed Description:

...a first set of components are 1 5 presented that are to be delivered in a first phase. This is accomplished by indicia coding the **first** set of components in a specific manner, Further, a second set of components are presented that are to be delivered in a second phase. This...custom development.

Product I Command Center - a Java-based
application that provides local and remote management and
monitoring of the platform in real-time. This **management**
console provides control of the application server, with the
ability to configure a range of properties for each server
component and the processes within them... ...Product3 supports Java servlet

development and network
caching of web pages.

Product3 simplifies management of website environments
through delegation of administrative privileges such as access **rights** to
administer meta-data components or load-balancing.

Java Web Server The first commercially available Java service based on the
JavaServer API framework for Java...as electronic commerce.

24
@@
A suite of pre-built applications that run on Business2's
Application Server. These applications include buying, selling,
merchandising, and delivering **content** over the Internet.

Productl ECProductl - Software for the integration of
eCommerce applications with legacy systems. It provides for
the sending, receiving, and encrypted transmission of... ...in a group.

Calendar - delivers group scheduling based
on a scalable real-time architecture.

Browser Custornization
Business2 Business Custornization Kit
enables Internet service providers, Internet **content** providers,
hardware OEMs, and others to create customized versions of
Product2.

Business2 Mission Control Desktop - cross
platform administration tools to configure, deploy, centrally
manage, and **update** Business2 Product2.

Business2 A high-performance, scalable web server software for
Enterprise Server deploying the largest-scale web sites. Business2 Enterprise Server
includes a built...broadcasting,
and receiving system that enables the creation and delivery of
media-rich information, both inside and outside the enterprise.

Media server includes four components.

Media Server - play real-time audio feeds,
provide on-demand access to pre-recorded audio clips,
and synchronize audio with HTML documents, Java
applets, and JavaScript...system building process. The Quality team is also directly
involved in ensuring the quality of the other IDEA management processes.

Program & Project Management
The Program **Management** team is responsible for delivering business capability.

In this respect, it is responsible for the System Building and other **management** teams. In addition, other management responsibilities that do not have a specific team or role defined within IDEA also belong to the Program Management team...Application team evolves as the development process continues - as the development of the application architecture components is completed, the Application Architecture team's roles may **change**. While the team continues maintaining the application architecture components, some team members may be deployed to the Application Development team. Here their roles can include...higher the life
expectancy, the more standards are justified
Attrition - a stable organization can tackle more detailed standards than a
47
volatile one
0 Expected **change** in the environment - a high rate of **change** provides
greater opportunity to reap the benefits of a standardized approach
Procedures specify how to perform a task. They are generally guided by the methodology...and interact, effectively reverse engineering the system into a conceptual model. It may be necessary to study certain pieces of code to understand how they **work**, but reverse engineering is not limited to code. For example, these techniques might help understand the data-model of a legacy application, in
76
order...i.e. encapsulate them so that the visible piece of any component remains fully controlled. This way, when a component is replaced (either for an **update** or because it has proved to be defective), no other system components that refer to that component will need to be altered.

Construction (134)
Construction... ...high quality.

The arrival of Integrated Development Environments ODEs), has further simplified the automation of construction processes to the degree that a single tool can **manage** the majority of the process.

As with Analysis and Design, usability must not be ignored in the construction of a system. Especially in the case... ...Component-based development may have an impact on the way in which testing should be performed.

Standards and Procedures
System test relies heavily on configuration **management**, repository **management**, and quality **management**.

0 Configuration **management** provides the basis for promoting a
configuration from the construction environment to the system test environment. As test

cycles are run and fixes implemented, migration... ...between system components. This is required to ensure that impact analyses are complete and correct, which, in turn, makes for effective regression testing.

0 Quality **management**, together with well-defined standards and procedures, ensures that the outputs from each test activity are documented at the right level of detail and fed... ...the system test environment)
Run test cycle
Compare expected results and actual results
Log System Investigation Requests (SIRs)
4' Analyze deviations and identify components requiring **change** (either expected results, test-data, or system components)
Define **Change** Requests (CRs) and perform impact analysis
Package those change requests that affect the same areas and that naturally belong together, into change packages
Schedule and staff the changes
0 Unlock components for change
Perform changes and refine impact analysis based on added understanding
Verify **changes** before re-submitting to system test
80
Migrate to system test based on updated impact analysis and re-lock components
Implementation Considerations
a) What model...Management tools 214 assist the management teams in their daily work
0 Environment Management tools 206 provide the facilities to maintain the development environment
Release **Management** tools 218 **manages** the simultaneous development of
83
multiple releases
0 Configuration Management tools 210 cover the version control, migration control and change control of system components such...well understood that both good communication and knowledge sharing are vital for the success of any team. As development projects get bigger and teams more **distributed**, it becomes increasingly difficult to maintain communication between project team members. Collaborative tools have been developed with this very purpose in mind - to enable groups... ...be found in the Collaboration Extensions 1 5 Framework in the database, and the Collaboration Architecture Framework in the Technology Library.

Implementation Considerations
a) How **distributed** are the project teams?
On projects with development sites that are geographically distributed, it is usually the case that communication by e-mail alone is...instructor-led training
102
is affected by the number of people that have to be trained, the complexity of the subject, and the availability and **distribution** of the people to be trained.

Program & Project Management (214)
Program and Project Management tools assist the management teams in their daily work. These tools...have to be managed. There is a significant cost involved in formal configuration management. If the system has a little over 100 modules, the Configuration **Management** component may consist merely of awhiteboard or Excel spreadsheet. As the
104
number of modules grows to about 1000, a dedicated tool is required.

h...be integrated with an impact analysis tool set. Impact analysis is important in order to group changes so that they can be implemented effectively.

Multiple **changes** may affect the same component and it would be wasteful to open that component many times over and implement the changes one at a time... ...change requests in several different ways such as area affected, priority, estimated cost or authorization is important to ensure correct scheduling of the implementation of **changes**. Flexible, customized sorting and reporting based on this classification is required to ensure that change is handled in a timely manner.

b) Should an Impact... ...falling between the cracks.

c) Does the toolprovidefteeformat description of changes?
Free forinat descriptions are important because this allows better and more understandable documentation of **change** requests and associated decisions.

d) Are there going to be multiple releases of the software?
The tool should allocate change requests to different releases based...does not always guarantee their quality. In order to minimize the dependency of the final system on these components (thus reducing the impact of possible **changes** within the libraries), it is recommended that wrappers are written to enclose any third-party components. This way, if any changes are made to the...an integral part of the Application team.

Audio
The tools required for creating audio content depend on the quality required, and whether or not the **content** is original. For'sound bites' or pre-recorded audio, simple desktop audio editing applications are adequate. For high-quality original content, a professional recording studio... ...it is possible to purchase re-usable content from agencies, usually delivered in the form of CD-ROMs.

NOTE: Tools required to store and manage **media content** (and storage formats) are discussed in Tools - Information Management - Media Content Management
Test (136)
Testing applications (client/server or Netcentric) remains a complex task because...and correct the fault. Although it may be possible to automate this process, human intervention may be required to perform at least some of these **management** tasks.

EVENT / DATA GENERATION (1314)
Event/data generation interacts with all the managed components in the execution and development environments in order to obtain the... ...data generation, event processing, and repositories components and then send data to the presentation or repositories components. Management applications tools include capacity planning tools, performance **management** tools, **license management** tools, remote **management** tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Enterprise Management tools even poll the event/data generators for information but these options...monitoring of the system, before any incidents have been logged.

Support thefunctions either centrally or on a distributed basis
If the Incident, Request and Problem **management** ftinctions are to be centralized, these functions need to be able to control and monitor incidents and problems, but other functions should be able to...short period of time can result in significant financial losses to a clients business.

Hardware Maintenance
Hardware Maintenance maintains all of the components within a **distributed** system to protect the investment of the organization. Generally agreed upon in the SLAs, maintenance contracts are carried out, monitored and recorded for each asset...performed in off-hours or delayed to avoid contention for the printer during business hours.

What are some limitations that may be encountered?
In a **distributed** environment the sizing and routing of print traffic is more complex.

With new systems being installed, only educated guesses about how and when printing will... ...the print routing algorithms post-rollout to reflect the printing reality.

Product Considerations
What is the intended use of the tool?
Controls report production and **distribution** form the moment the report is created to the time the printed report is dropped in the end-use s mailbox (electronic, paper, microfiche, etc... ...the
distribution process
0 Notifies the service level management facility of any missed service commitments.

0 Communicates with the documentation management facility to obtain the **distribution** information, **media** type and service level commitments.

0 Communicates with the recovery management facility to delete reports that will be recreated.

0 Communicates report volumes to the...

Claims:

...4plications
Failute"ControlF,Repositoriesling 1346Help Desk no-dent Ma-n---], Disaster1308 Change Control Release ControlRecoveryCoAsset)Mblem MarMigration Contro**Management**RequestRe **License**llout 1331310 anagement **Management**aino an@@I@Failure'.Conman1 3 1,re Database Management 1340m- o@ ImplemahP du11 1-1"-----" - , Z Recovery..... .... .Production...

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Country	Number	Kind	Date

Detailed Description:

...system are selected to be delivered in the first phase in operation 41a. Further, in operation 41b, the remaining components are separated into primary and **secondary** components, in which the **primary** components must be installed before the **secondary** components in order for the secondary components to function properly. The primary components may also be selected to be delivered in the first phase in...current network framework to which each of the network products or services relate by indicia coding the components.

In one example of operation 26, a **first** database is created in which selected services are compiled. See operation 56a of Figure 11 In operation 56b, a second database is created. The second...that allow users to
communicate in a heterogeneous environment of Business I Product3 A secure, standards-based web server for accessing, 1.5 managing, and **distributing** information over the Internet, extranets, or
intranets. Product3 supports Java servlet development and network
caching of web pages.

Product3 simplifies management of website environments
through... ...information such as user definitions, user profiles, network resource definitions, and configuration parameters. It employs naming,
directory, and authentication protocols on top of a shared, **distributed**,
object repository. Users and applications can use the directory to
locate and access information from anywhere in the network.

JavaWallet Java Electronic Commerce Framework (JECF... ...transactions using any

combination of currencies
1 9
and payment instruments such as credit and debit cards, electronic cash and checks, and smart cards.

The **initial** component of the JECF is the JavaWallet, a client side application that will be distributed as a core component of the Java environment. JavaWallet will...Windows NT, PC or Apple Macintosh systems.

It also provides centralized administration and control through a unified view.

Product6 AdminSuite -- suite of tools for administering **distributed** systems and managing user accounts, hosts, groups, administrative data, printer, file system, disk and serial ports.

Product5 j Software- browser-based graphical administration tool that...I -An application that utilizes both passive and active customer profiling capabilities to create targeted advertising, and to deliver personalized information for superior customer service. **Content** management tools are combined with application development tools to allow to host and deploy multiple sites.

MerchantProductl - An online business-to consumer merchandising solution that...safe passage through the firewall for audio connections and operates as a reverse-proxy outside a firewall.

Media Converter - compresses and converts different audio forinats.

Media Player - a plug-in needed to access audio files or a live feed from a **Media** Server.

1.4
28
. 5 Business3 (www. business3. com)
Business3 primarily provides Internet services for web users. It offers a variety of services including internet...librarian whose responsibilities include.

0 Reviewing designs
Packaging classes and components for reuse
Managing maintenance and upgrades of common components (a strong relationship with Configuration **Management** team is required)

Media Content Management
The methods of handling media content are somewhat different from those surrounding more traditional development content such as code...eight key management processes.

The core activity - systems building, depends strongly on support from the surrounding management processes, which all affect each other.

a) Information **Management manages** the information that supports the entire project - information that is used both in systems building and in other **management** processes
b) Security **Management** covers all areas of development security, ftom coding 1 0 standards, to security verification.

c) Quality **Management** pertains to all areas of the development environment d) Program and Project **Management** must **manage** all the **management** processes
in addition to **managing** the systems buildingprocess
e) Environment Management supports the environment where management
1 5 processes are performed, and where systems are being built
fi Release Management...between work in progress and completed documents that have been approved. This distinction can be supported by a folder structure
53
with carefully chosen access **rights**.

This distinction makes it easy to retrieve a consistent copy of project documentation for someone who is new to the project.

While scratch folders may...high quality.

The arrival of Integrated Development Environments ODEs), has further simplified the automation of construction processes to the degree that a single tool can **manage** the majority of the process.

As with Analysis and Design, usability must not be ignored in the construction of a system. Especially in the case... ...nation of information is complete and correct.

As automation progresses and an increasing number of business processes are supported by computer systems, system test is **changing** in nature. Firstly, the testing of interfaces to other systems is becoming an ever larger part of systems test. Secondly, system test increasingly applies to... ...factors increase the value of automated testing tools, given that the Standards and Procedures System test relies heavily on configuration management, repository management, and quality **management**.

" Configuration **management** provides the basis for promoting a configuration from the construction environment to the system test environment. As test cycles are run and fixes implemented, migration... ...between system components. This is

required to ensure that impact analyses are complete and correct, which, in turn, makes for effective regression testing.

0 Quality **management**, together with well-defined standards and procedures, ensures that the outputs from each test activity are documented at the right level of detail and fed... ...to the system test environment)
Run test cycle
Compare expected results and actual results
Log System Investigation Requests (SIRs)
Analyze deviations and identify components requiring **change** (either expected results, test-data, or system components)
Define **Change** Requests (CRs) and perform impact analysis
Package those change requests that affect the same areas and that naturally belong together, into **change** packages
Schedule and staff the **changes**
Unlock components for **change**
Perform **changes** and refine impact analysis based on added understanding
Verify **changes** before re-submitting to system test
Migrate to system test based on **updated** impact analysis and re-lock components
Implementation Considerations
a) What model of testing does thefirmfollow?
The following is an overview of the firm's testing...0 Quality Management tools 204 support all quality management processes
" Program and Project Management tools 214 assist the management teams in their daily work
" Environment **Management** tools 206 provide the facilities to maintain the development environment
0 Release Management tools 218 manages the simultaneous development of multiple releases
* Configuration Management tools...apply the appropriate security controls accordingly.

Is communication outside the local environment necessary?
Is remote access required?
If so, a gateway will be required to **manage** communication beyond the local environment. This will bring with it security implications, as the local environment will no longer be isolated.

b) Do e- mail... ...benefits of electronic mail and teamware materialize.

For example, certain teamware databases require continuous maintenance in order to remain relevant. The management of the database **contents** may require significantly more work than either the initial installation of the tools or the technical support for the tools. This effort is frequently underestimated... ...to setting guidelines for general usage, the project must designate mail administrators and knowledge managers who are responsible for.

Maintaining user accounts
Maintaining security profiles
Managing database contents
Removing obsolete information
Managing resource usage (for example, disk space)
Implementation Considerations
a) What size is the project team?
Teamware will generally only be effective when used within large... ...system, interest will soon dwindle, and the system will no longer be of any value.

87
Group Schedulin (142)
Group scheduling tools help to centrally **manage** the personal schedules of a group of people. This offers the advantage of being able to coordinate events that require the participation of ...of the total look and feel of the application. Change requests may also be rejected or deferred by an authorized person.

d) Is coordination of **changes** required?
Facilities to track interdependencies between change requests (for example, change request A must be completed before change request B can start) are provided by...implemented must also be a factor of project size and duration.

The environment management requirements in this section are based upon the MODE (Management of **Distributed** Environments) conceptual framework. This section uses MODE as a framework, adopts MODE terminology, and focuses on those management tasks from MODE which are particularly important... ...the Help Desk
Tools to support the creation, management, and reporting of Service Level
114
Agreements (SLAs) and Operations Level Agreements (OLAs)
0 Tools to **manage** and support the quality of the development environment
Systems **Management** (126)
Systems Management Tools support and manage the operation of the distributed system. Many specific monitoring and analysis tools are covered in detail in the...and managing change in the development environment. Specific tools are discussed in detail in the MODE Products Database on the Knowledge Xchange.

Data and Software **Distribution** is a key tool in this category for development environments that have several developers. These tools enable automated distribution of data and software to the... ...affected by the problem
It is important to select an automated Problem Management system that is
117
integrated with the program's testing and Configuration **Management** tools. Therefore, the Problem **Management** system must be able to support the testing model selected, for example, the V-model, and have tight integration with the Migration and Version Control... ...type of security is required for the Problem Management application. This is

closely tied with the Configuration Management tools. Only one person should have the **rights** to review and approve problem analysis tasks as well as problem migration activities.

Implementation Considerations
a) How are problems handled at each stage?
b) How...the impact of possible changes within the libraries), it is recommended that wrappers are written to enclose any third-party components. This way, if any **changes** are made to the internals of the components, only the wrappers would be affected, allowing the application and architecture code to remain unchanged.

Frameworks may... ...enhancements.

c) Will the vendor guarantee consistency of all interfaces acrossfuture releases? The biggest danger in using packaged components is that the vendor will make **changes** to the component interfaces. When selecting packaged components make sure the vendor guarantees backwards compatibility of all the existing interfaces provided by the component. If...In the majority of Integrated Development Environments, the Compiler, Linker and/or Interpreter are included as an integral part of the system. In addition, the **management** of compilation and linking is automated using MAKE utilities which understand the dependencies between modules in the system. This allows the system to trigger all necessary re-compilation and re-linking when a module in the system is **changed**, thus avoiding the time consuming task of re-compiling and re-linking the entire system.

Product Considerations
a) Is the tool easy to use?
The...system?
b) What tools can be usedfor problem tracking?
The RTP Tools Development team has documented their evaluation summaries of

the internal test plan **management** system. The following is a brief description of the product. To view more detailed information, follow this doclink to the RTP Tools Initiative document.

The...should usually be avoided if possible. Were possible, the tool with the closest match should be purchased, and customized to meet the necessary requirements.

Some **additional** considerations are outlined below.

Central vs. **Distributed** Control
The answer to this question may limit the selection of tools as not all tools are capable of controlling functions remotely. If control is centralized, technical expertise at distributed sites will not be necessary. This may, however, mean that a more complex, expensive tool is required.

If control is **distributed**, technical expertise will be needed at remote sites, and there is the potential for problems with the interfaces between tools.

Pla@fbrm Constraints
Systems-based...generation, event processing, and repositories components and then send data to the presentation or repositories components. Management applications tools include capacity planning tools, perfon-nance **management** tools, **license management** tools, remote **management** tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Enterprise Management tools even poll the event/data generators for information but these options...Incident Managemen
Incident Management provides the interface between the users of the system and those operating and maintaining the system when an incident arises. Incident **Management** is responsible for.

receiving incidents from users
informing users of known work-around where possible
0 ensuring that support personnel are working on an incident...with agreed upon SLAs. As part of this payment process Billing & Accounting reconciles bills from service providers against monitored costs and SLA/OLA violations.

Systems **Management** Planning (1330)
Cal2aci1y Modeling and Plannin
Capacity Modeling & Planning ensures that adequate resources will be in place to meet the SLA requirements, keeping in mind...the print routing algorithms post-rollout to reflect the printing reality.

Product Considerations
What is the intended use of the tool?
Controls report production and **distribution** form the moment the report is created to the time the printed report is dropped in the end-use s mailbox (electronic, paper, microfiche, etc... ...the
distribution process
0 Notifies the service level management facility of any missed service commitments.

0 Communicates with the documentation management facility to obtain the **distribution** information, **media** type and service level commitments.

0 Communicates with the recovery management facility to delete reports that will be recreated.

0 Communicates report volumes to the...

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	Country	Number	Kind	Date
Patent				19

Detailed Description:

...of the customer relationship management-related web application services in accordance with one
embodiment of the present invention;
Figure 24 is a flowchart illustrating the **content** management and publishing-related web application services in accordance with one embodiment of the present invention; Figure 25 is a flowchart illustrating the education-related...is generated in operation 37. Operation 38 indicia codes a first component or components of the existing network framework in order to indicate that the **first** component is a primary component, as selected in operation 36b, which must be implemented first. Operation 39 indicia codes a second component and any remaining... ...as determined in operation 36c, and must be implemented after the first component. For example, second components which should be provided only after other necessary **first** components are in place may be distinguished from the primary components by having indicia coding unique with respect to the indicia coding of the first...that allow users to
communicate in a heterogeneous environment of Business I Product3 A secure, standards-based web server for accessing, 1.5 managing, and **distributing** information over the Internet, extranets, or
intranets. Product3 supports Java servlet development and network
caching of web pages.

Product3 simplifies management of website environments
through...Software Developer's Kit provides application
programming interfaces that enable developers to directory-enable
their applications.

Business2 Proxy A system for caching and filtering web **content**, log analysis, Server and boosting network performance.

Bussiness2 Calenda A calendar server that supports the scheduling of meetings, appointments, and resources for thousands of users...206
The Release Management team 208
The Configuration Management team 210
The Problem Management team 212
The Program and Project Management teams 214
The Security **Management** team 216

Together, these teams support the efforts of the System Building team, which is charged with the analysis, design, build, and test of the...a large project. Their utility greatly increases if they are managed appropriately. This management is based on easy-to-follow, easy-toenforce standards.

Ob -ject **Management**
The responsibilities involved with object **management** are very similar to those involved with repository management. However, in order to facilitate and promote reuse, it is recommended to have a librarian whose...and frequency of these operations is often greater than that of the execution environment).

To ensure that this area receives the necessary attention, an Environment **Management** team 400 should be assigned these tasks. Figure 4 is an illustration showing the Environmental **Management** Team responsibilities.

The Service Group 402 serves as a single point of contact for developers. It interfaces with the Architecture team to provide answers to...Both of these factors increase the value of automated testing tools, given that the Standards and Procedures System test relies heavily on configuration management, repository **management**, and quality **management**.

0 Configuration **management** provides the basis for promoting a configuration from the construction environment to the system test environment. As test cycles are run and fixes implemented, migration can become complex, requiring flexible mechanisms for locking and unlocking system components and analyzing the impacts of change.

0 Information **management**, and in particular repository **management**, guarantees a correct view of the interrelationships between system components. This is required to ensure that impact analyses are complete and correct, which, in turn... ...and actual results
0 Log System Investigation Requests (SIRs)
* Analyze deviations and identify components requiring change (either expected results, test-data, or system components)
Define **Change** Requests (CRs) and perform impact analysis
Package those change requests that affect the same areas and that naturally belong together, into change packages
Schedule and...testing, the system should be technically sound, and data flow throughout the system should be correct. Component and assembly testing ensures that all transactions, database **updates**, and conversation flows function accurately.

Testing in later stages will concentrate on user requirements and business processes, including work flow.

d) Are benefits being tested... ...management components.

* Information Management tools 202 manage the information that supports the entire project - information that is used both in systems building and in other **management** processes
" Security **Management** tools 216 enable the development of security components
0 Quality Management tools 204 support all quality management processes
" Program and Project Management tools 214 assist...to send simple ASCII text, e-mail systems usually provide the capability to attach binary files to messages. E-mail is a convenient tool for **distributing** inforination to a group of people, as it has the advantage of delivering content directly to the 'mailbox' of each individual, rather than relying on...groups. Each of these groups is also assigned specific read/write/delete/modify authority. For example, the following groups may be defined as having increasing **rights**.

Programmer
Designer
Technical support
Repository administrator
A le:s flexible alternative is to lock objects. A locked object cannot be changed until the repository administrator...or instructor-led training is affected by the number of people that have to be trained, the complexity of the subject, and the availability and **distribution** of the people to be trained.

Program & Project Management (214)
Program and Project Management tools assist the management teams in their daily work. These tools... ...the number of objects, files, or components. The management of these items becomes increasingly difficult to manage and track during the development process. The Configuration **Management** tool provides structure for **managing** the objects, files, and components and reduces the risk of lost information caused by version problems, or by items not being migrated properly.

104
d...and is usually supported by the tools.

Product Considerations
a) Does the toolprovide capabilities to caterfor a system running on multiple pla@forms or a **distributed** system?
Ideally, the Version Control tool must be able to operate on all the platforms in use, whilst at the same time performing Version Control... ...are implemented together.

Hence impact analysis is important for scheduling purposes and for estimating cost.

Product Considerations
a) Does the toolprovide a capability to classify **change** requests?
Change requests may occur as a consequence of changing requirements, or as a result of nonconformities (or defects) in the system. The tool should be able...and often must support projects at different stages of the development life cycle.

As such, it is a mission-critical production environment and must be **managed** based upon an operations architecture. The extent to which the areas of the operations architecture are implemented must also be a factor of project size... ...0 Tools to manage and support the quality of the development environment
Systems Managemen (126)
Systems Management Tools support and manage the operation of the **distributed** system. Many specific monitoring and analysis tools are covered in detail in theNetwork Performance Management practice aid and the Technology Products and Vendors database, both...defines physical interfaces and locations for components. It is important for performance 1 5 reasons that communication between components is minimized, especially if they are **distributed**.

Reuse Support
It is during analysis and design that really large savings can be obtained by reusing existing solutions. At this stage, reuse is often...unchanged.

Frameworks may be found on the market which provide generic components for general business processes such as general ledger, sales order processing, inventory
149
management or product distribution. For example, IBM San Francisco offers business components for the Java environment (see Error! Bookmark not defined.)
Product Considerations
a) Does the...human intervention may be required to perform at least some of these management tasks.

EVENT / DATA GENERATION (1314)
Event/data generation interacts with all the **managed** components in the execution and development environments in order to obtain the required management information.

This component also interacts with the physical environment, managing hardware... ...data generation, event processing, and repositories components and then send data to the presentation or repositories components. Management applications tools include capacity planning tools, perforinance **management** tools, **license management** tools, remote **management** tools, systems monitoring tools, scheduling tools, help desk tools, etc.. Some Enterprise Management tools even poll the event/data generators for information but these options...up a device after it has failed to those required in the event of a major disaster. With critical business applications being rolled out on **distributed** technologies, the recovery of these systems must be easy, quick and efficient. Loss of the system for even a short period of time can result in significant financial losses to a clients business.

Hardware Maintenance
Hardware Maintenance maintains all of the components within a **distributed** system to protect the investment of the organization. Generally agreed upon in the SLAs, maintenance contracts are carried out, monitored and recorded for each asset...

...performed in off-hours or delayed to avoid contention for the printer during business hours.

What are some limitations that may be encountered?
In a **distributed** environment the sizing and routing of print traffic is more complex.

With new systems being installed, only educated guesses about how and when printing will... ...the print routing algorithms post-rollout to reflect the printing reality.

Product Considerations
What is the intended use of the tool?
Controls report production and **distribution** form the moment the report is created to the time the printed report is dropped in the end-use s mailbox (electronic, paper, microfiche, etc...in the
distribution process
" Notifies the service level management facility of any missed service commitments.

'6 Communicates with the documentation management facility to obtain the **distribution** information, **media** type and service level commitments.

Communicates with the recovery management facility to delete reports that will be recreated.

0 Communicates report volumes to the resource... ...PCL, Postscript, etc..) and code translation.

Any other specificJunctional requirements?
Output management issues require leverage of existing print capability, local and remote printing, and distribution **management** through a software package or an equivalent alternative.

File Transfer & Control
File Transfer and Control initiates and monitors files being transferred throughout the system as... ...for the startup or shutdown of the entire system (e.g., hardware, applications), or portions of the system depending upon the identified requirements. Within a **distributed** environment, the system includes both centralized and remote resources.

Implementation Considerations
Will devices need to be shutdown /started remotely as well as be automatic... ...e.g., databases should be started before applications) as well as defined service levels (e.g., one particular application is critical and must be started **first**), the order of startup / shutdown will be deten-nined.

Are periodic re- boots required (e.g., to clean up memory)?
If this is necessary, automatic...

Claims:

...j Recovery ion
Product3roblem Management I - HC66-trolAssetM,=rnce Management Migration ControlEequlas=tMalnagementRollout1310 I systems Man gement **Management** F **License** 133Administr6bon **Management**/Failure Control Billing anclAcouunting C2pQdty Modeling and planning BManagement1312 Management1340Databaseproduction Control implementing =oreRecovery Managementf Mass -Stonagemanagement Database...

Dialog eLink: Order File History
10/K/19 (Item 12 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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	Country	Number	Kind	Date
Patent				19

English Abstract:

The disclosure details a variety of steganographic encoding and decoding of auxiliary information in physical and **media** objects (16) in traditional **distribution** (14) to **music media** outlets (20). In particular, digital watermarks embeded in media content are used to initiate automated transactions associated with the content and to link creative content...

Detailed Description:

...following detailed description and accompanying drawings.

Brief Description of the Dra@y@
Fig. I is a diagram showing the participants, and channels, involved in the **distribution** of **music**.

Fig. 2 shows a conceptual model of how music artists, record labels, and E-Music distributors can all interact with a Media Asset Management System... ...applicable to other source data, whether non-music audio, video, still imagery, printed materials, etc.

1 0 Music Asset Management
Referring to the figures, the **music distribution** process begins with a creative artist 10.

The artist's **music** has traditionally been **distributed** by a record label 12. (While the following discussion refers to distribution through such a label, it should be understood that such distribution can 'ust... ...record
label intermediary.)
In traditional distribution 14, the record label produces tangible media, such as records, ideos (e.g. music videos), and CDs 16. These **media** are physically **distributed** to end tapes, vi I I 1
consumers 18. Additionally, the label 12 **distributes** the **music media** to outlets 20, such as radio and TV stations, cable and satellite systems, etc., which broadcast (or narrowcast) the artist's work to an audience. **Distribution** through such **media** outlets may be monitored by playout tracking services. Playout tracking data, collected by firms including Arbitron, Nielsen, ASCAP, BMI, etc., can be used to compute royalty payments, to verify broadcast (e.g.

for advertising), etc.

Increasingly, the **distribution** of the **music** to the media outlets is performed electronically. Such **distribution first** took the form of analog audio over highquality landlines or satellite channels. Digital audio quickly supplanted analog audio in such distribution channels due to higher fidelity.

More recently, **distribution** of the **music** from the record labels to the media outlets has occurred over secure links, now including the internet. Such security was first provided simply by scrambling... ...data. More sophisticated "container"-based systems are now coming into vogue, in which the audio is "packaged" (often in encrypted form) with ancillary data.

Electronic **distribution** of **music** to the consumer is also gaining popularity, presently in the MP3 format primarily. The music providers may deal directly with the public, but more commonly... ...foregoing channels. However, one of the greatest risks occurs once the music has been delivered to the consumer (whether by tangible media, by traditional broadcast **media** outlets, by emerging digital **distribution**, or otherwise).

The general idea of embedding auxiliary data into music (i.e. waten-narking) has been widely proposed, but so far has been of... ...for "tracking" is actively disclaimed. (Wired News, "GoodNoise Tags MP3 Files,"
February 3, 1999.)
The Genuine Music Coalition - a partnership of various companies in the **music distribution** business - likewise has announced plans to employ watermarking of MP3 music.

The watermarking technology, to be provided by Liquid Audio, will convey data specifying the... ...Termed the Secure Digital Music Initiative (SDMI), the program seeks

to define a voluntary specification that will assure proper compensation to those who produce and **distribute music**. One ...date/proprietor.

Additionally, the payload can include a digital object identifier - an ISBN-like number issued I 0 by a central organization (e.g. a **rights management** organization) to uniquely identify the work.

Such payload data can be encoded literally (e.g. the title by a series of ASCII characters, etc.). In...watermark is a date field. This field can indicate either the date the music was watermarked, or a date in the future on which certain **rights** associated with the music should **change**. Some consumers, for example may not wish to purchase perpetual playback rights to certain musical selections. The right to play a selection for 6 months...watermark, and refuse to make a copy if it is not detected as set.

These three examples are but illustrations of many possible techniques for **changing** the **rights** associated with a work. Many other techniques are known. See, e.g., the proposals for watermark-based copy control systems for digital video at the...with time, there is not much after-market demand that could be served by illicit copies, making third party compilation of such material for re-**distribution** financially unattractive. **First** run ideo, and material that keeps a high value over time, would not be as well suited for such
vi
distribution, and could better employ...the MGA sites 5 corresponding to various boolean combinations of meta-tag parameters.

Asset Management/Containers
Much has been written on the topic of asset **rights management**. Sample patent documents include U.S. Patents 5,892,900, 5,715,403, 5,638,443, 5,634,012, 5,629,980 and laid-open...

Claims:

...artist.

29 The method of claim 26 in which the third group of bits represents usage restrictions to which audio appliances are responsive, thereby driving **distribution** of **additional** copies of the **music** data. - 45

30 A media object clearinghouse system comprising:
a media object clearinghouse operable to transfer a media object electronically; a watermark decoder in communication...

10/K/20 (Item 13 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT

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Country	Number	Kind	Date

Detailed Description:

...100. Models such as wholesale or retail purchase, pay-per-listen usage, subscription services, copy/no-copy restrictions, or redistribution could be implemented through the **rights management** of the Clearinghouse(s) 105 and the End-User Player Application 195 copy protection features.

The Secure Digital **Content** Electronic **Distribution** System 100 allows Electronic Digital Content Store(s) 103 and Intermediate Market Partners a great deal of flexibility in creating services that sell Content 113... ...metered so that they can receive appropriate compensation for the licensing of Content 1 13.

H. CRYPTOGRAPHY CONCEPTS AND THEIR APPLICATION TO THE SECURE DIGITAL
CONTENT ELECTRONIC **DISTRIBUTION** SYSTEM
License Control in the Secure Digital **Content** Electronic **Distribution** System 100 is based on the use of cryptography. This section introduces basic cryptography technologies of the present invention. The use of public key encryption, symmetric key encryption, digital signatures, digital watermarks and digital certificates is known.

A. Symmetric Algorithms
In the Secure Digital **Content** Electronic **Distribution** System I 00 the **Content** Provider(s) 1 0 1 encrypts the content using symmetric algorithms. They are called syrninetric algorithms because the same key is used to encrypt and... ...The data sender and the message recipient must share the key. The shared key is referred to here as the symmetric key. The Secure Digital **Content** Electronic **Distribution** System 100 architecture is independent of the specific symmetric algorithm selected for a particular implementation.

Common symmetric algorithms are DES, RC2 and RC4. Both DES... ...56 460 113 85 19
RC2 40 40 286888
RC4 40 151 2377723
RC4 40 151 2377723
B. Public Key Algorithms
In the Secure Digital **Content** Electronic **Distribution** System 100, symmetric keys and other small data pieces are encrypted using public keys. Public key algorithms use two keys. The two keys are mathematically... ...6 kilobits/second with a 512-bit modulus and 7.4 kilobits/second with a 1024-bit modulus.

C. Digital Signature
In the Secure Digital **Content** Electronic **Distribution** System 100, the issuer of SC(s)

protects the integrity of SC(s) by digitally signing it. In general, to create a digital signature of...the recovered one. If the message has not being altered during distribution, the calculated digest and recovered digest must be equal.

In the Secure Digital **Content** Electronic **Distribution** System 100, since SC(s) contain several data parts, a digest is calculated for each part and a summary digest is calculated for the concatenated... ...recipient of the message uses the entity's name from the certificate to decide whether or not to accept the message.

In the Secure Digital **Content** Electronic **Distribution** System 1 00, every SC(s), except those issued by the End-User Device(s) 109, includes the certificate of the creator of the SC... ...many End- User(s) do not bother to acquire a certificate or have certificates issued by non bona-fide Certification Authorities. In the Secure Digital **Content** Electronic **Distribution** System 100, the Clearinghouse(s) 105 has the option of issuing certificates to the Electronic Digital Content Store(s) 103. This allows the End-User Device(s) 109 to independently verify that the Electronic Digital Content Store(s) 103 have been authorized by the Secure Digital **Content** Electronic **Distribution** System 100.

E, Guide To The SC(s) Graphical Representation
This document uses a drawing to graphically represent SC(s) that shows encrypted parts, non... ...symmetric key in this case). Another encrypted object, in this example a Transaction ID encrypted object 205 is shown. And Usage Conditions 206 for content **licensing management** as described below. The SC(s) 200 comprises Usage Conditions 206, Transaction ID encrypted object 205, an Application ID encrypted object 207, and encrypted symmetric... ...created and decrypted in this process overview is a general SC(s). It does not represent any of the specific SC(s) types used for **rights management** in the Secure Digital **Content** Electronic **Distribution** System 100. The process consists of the steps described in FIG. 3 for encryption process.

Process Flow for Encryption Process of FIG. 3
Sten Process...refers to the recipient's private key.

418 Recipient uses the symmetric key to decrypt the encrypted content. This recovers the content.

Hi. SECURE DIGITAL **CONTENT** ELECTRONIC **DISTRIBUTION** SYSTEM FLOW
The Secure Electronic Digital **Content Distribution** System 100, consists of several components that are I 0 used by the different participants of the system. These participants include the Content Provider(s... ...via End-User Device(s) 109 and the Clearinghouse(s) 105. A high level system flow is used as an overview of the Secure Digital **Content** Electronic **Distribution** System 100. This flow outlined below tracks Content as it flows throughout the System I 00. Additionally it outlines the steps used by the participants...User Device(s) 109. Upon the receipt the Content 113 is de-encrypted by the End-User Device(s) 109 using the Symmetric Key.

IV. **RIGHTS MANAGEMENT** ARCHITECTURE MODEL

A, Architecture Layer Functions

FIG. 5 is a block diagram of the **Rights Management** Architecture of the Secure Digital **Content** Electronic **Distribution** System 100. Architecturally, four layers represent the Secure Digital **Content** Electronic **Distribution** System 100: the License Control Layer 501, the Content Identification Layer 503, Content Usage Control Layer 505, and the Content Formatting Layer 507. The overall... ...required that the output from one layer satisfies format and semantics acceptable to the adjacent layer.

The License Control Layer 501 ensures that.

the Digital **Content** is protected during **distribution** against illegal interception and tampering; the Content II 3 originates from a rightful **content** owner and is **distributed** by a licensed distributor, -e.g.

Electronic Digital Content Store(s) 103;
the Digital Content purchaser has a properly licensed application;
the distributor is paid... ...native representation in the content owner's facilities into a form that is consistent with the service features and distribution means of the Secure Digital **Content** Electronic **Distribution** System 100. The conversion processing may include compression encoding and its associated preprocessing, such as frequency equalization and amplitude dynamic adjustment. For Content II 3... ...13 also needs to be processed to achieve a format appropriate for playback or transfer to a portable device.

B. Function Partitioning and Flows

The **Rights Management** Architectural Model is shown in FIG. 5 and this illustrates the mapping of the architectural layers to the operating components making up the Secure Digital **Content** Electronic **Distribution** System 1 00 and the key functions in each layer.

1 . Content Formatting Layer 507

The general functions associated with the Content Formatting Layer 507... ...its transmission time. Any compression algorithm appropriate for the type of Content I 1 3 and transmission medium can be used in the Secure Digital **Content** Electronic **Distribution** System 100. For **music**, MPEG V2/4, Dolby AC-2 and AC-3, Sony Adaptive Transform Coding (ATRAC), and low-bit rate algorithms are some of the typically used...Transaction 541 and the License Authorization 543 are complete and authentic, that the Electronic Digital Content Store(s) 103 has authorization from the Secure Digital **Content** Electronic **Distribution** System 100 for the sale of electronic Content 113, and that the End-User(s) has a properly licensed application. Audit/Reporting 545 allows the generation of reports and the sharing of licensing transaction information with other authorized parties in the Secure Electronic Digital **Content Distribution** System 100 License control is implemented through SC Processing 533. SC(s) are used to **distribute** encrypted **Content** 113 and information among the system operation components (more about the SC(s) detailed structure sections below). A SC is cryptographic carrier of information that... ...from reputable Certificate Authorities that are used to authenticate those components. The End-User

Device(s) 109 are not required to have digital certificates.

C. **Content Distribution** and Licensing Control
FIG. 6 is a block diagram illustrating an overview of the **Content Distribution** and Licensing Control as it applies to the License Control Layer of FIG. 5. The figure depicts the case in which the Electronic Digital Content...each Content 113 object, the Metadata SC(s) 620 also carries the Store Usage Conditions 519 associated with the Content Usage Control Layer 505.

The **Content** Provider(s) I 01 **distributes** the Metadata SC(s) 620 to one or more Electronic Digital Content Store(s) 103 (step 601) and the Content SC(s) 630 to one...
...End-User Device(s) 109, the Clearinghouse(s) 105 verifies.

I . that the Electronic Digital Content Store(s) 103 has authorization ftom the Secure Digital **Content** Electronic **Distribution** System 1 00 (exists in the Database 160 of the Clearinghouse(s) 105);
2. that the Order SC(s) 650 has not been altered;
...was used to encrypt the encrypted part.

If the SC(s) does not contain any encrypted parts, then there is no Key Description part.

B. **Rights Management** Language Syntax and Semantics
The **Rights Management** Language consists of parameters that can be assigned values to define restrictions on the use of the Content I 1 3 by an End-User...Key 623 bit string that was used to encrypt the part.

VIL CLEARINGHOUSE(S) 105
A. Overview
The Clearinghouse(s) 105 is responsible for the **rights management** functions of the Secure Digital **Content** Electronic **Distribution** System 100. Clearinghouse(s) 105 functions include enablement of Electronic Digital Content Store(s) 103, verification of rights to Content 113, integrity and authenticity validation of the buying transaction and related information,.**distribution** of **Content** encryption keys or Symmetric Keys 623 to End-User Device(s) 109, tracking the distribution of those keys, and reporting of transaction summaries to Electronic...Content Store(s) Embodiment
An Electronic Digital Content Store(s) 103 that wants to participate as a seller of Content 113 in the Secure Digital **Content** Electronic **Distribution** System 100 makes a request to one or more of the Digital Content Provider(s) I 01 that provide Content 1 1 3 to the Secure Digital **Content** Electronic **Distribution** System 1 00. There is no definitive process for making the request so long as the two parties come to an agreement. After the digital... ...s) 105 is contacted, usually via E-mail, with a request that the Electronic Digital Content Store(s) 103 be added to the Secure Digital **Content** Electronic **Distribution** System 100. The digital **content** label provides the name of the Electronic Digital Content Store(s) 103 and any other information that may be required for the Clearinghouse(s) 105... ...End-User Device(s) 109 verifies that the Electronic Digital Content Store(s) 103 is a valid distributor of Content 113 on the Secure Digital **Content**

Electronic **Distribution** System 100 by **first** checking the digital certificate revocation list and then using the Public Key 621 of the Clearinghouse(s) 105 to verify the information in the digital... ...660 it determines whether a new revocation list is included and if so, the local revocation list on the End-User Device(s) 109 is **updated**.

B. **Rights Management** Processing
Order SC(s) Analysis
The Clearinghouse(s) 105 receives an Order SC(s) 650 from an End-User(s) after the End-User(s... ...Transaction and Offer SC(s) 641 digital signatures also indirectly verifies that the Electronic Digital Content Store(s) 103 is authorized by the Secure Digital **Content** Electronic **Distribution** System 100. This is based on the fact that the Clearinghouse(s) 105 is the issuer of the certificates.

Alternately, the Clearinghouse(s) ...SC(s) 660 to the End-User Device(s) 109. The Electronic Digital Content Store(s) 103 is also expected to participate in managing the **distribution** of **Content** 113 to various countries by performing the same checks as the Clearinghouse(s) 105. The Clearinghouse(s) 105 does whatever checking that it can in...Content 113 purchase transactions and report request transactions. The information can be used for a variety of purposes such as audits of the Secure Digital **Content** Electronic **Distribution** System 100, generation of reports, and data mining.

The Clearinghouse(s) 105 also maintains account balances in Billing Subsystem 182 for the Electronic Digital Content...Store(s) 103 so that the Electronic Digital Content Store(s) 103 can charge the End-User(s)' credit card.

G, Retransmissions
The Secure Digital **Content** Electronic **Distribution** System 100 provides the ability to handle retransmissions of Content 113. This is typically performed by a Customer Service Interface 194. Electronic Digital Content Store... ...User(s) for the purchase of the Content I 1 3.

VH1. CONTENT PROVIDER
A. Overview
The Content Provider(s) 101 in the Secure Digital **Content** Electronic **Distribution** System 100 is the digital content label or the entity who owns the rights to the Content 11 3. The role of the Content Provider(s) 101 is to prepare the **Content** I 1 3 for **distribution** and make information about the Content I 1 3 available to Electronic I 0 Digital Content Store(s) 103 or retailers of the downloadable electronic... ...that the Content 113 is secure when it leaves the Content Provider(s)' 101 domain and never exposed or accessible by unauthorized parties. This allows **Content** 113 to be freely **distributed** throughout a non-secure network, such as the Internet, without fear of exposure to hackers or unauthorized parties.

The end goal of the tools for... ...Content 113 and information and calls the SC(s) Packer to pack into SC(s).

Content Dispersement Tool (not shown) - Disperses SC(s) to designated **distribution** centers, such as **Content** Hosting Sitc(s) I I I and Electronic Digital Content Store(s) 103.

Content Promotions Web Site 156 - stores Metadata SC(s) 620 and optionally...song file remain available until after Content Quality Control Process 81 0.

II. Encryption Process 811

The Encryption Process 811 calls the appropriate Secure Digital **Content** Electronic **Distribution Rights Management** function to encrypt each of the watermarked/encoded song files. This process has no dependencies other than completion of all other audio processing. Upon completion...of media, such as several audio- CDS, can be queued up so as to enable the Automatic Metadata Acquisition Tool to create a series of **Content** 113 for electronic **distribution**. For example, all the **Content** 113 could be created from a series of CDS or even selected tracks from one or more CDS examined by the Content Provider(s) I...design and layout of this site or can choose to use a turnkey web server solution provided as part of the toolkit for Secure Digital **Content** Electronic **Distribution** System I 00. To implement their own design for this service, the Content Provider(s) 1 0 1 need only provide links to the Metadata SC(s) 620 for Electronic Digital Content Store(s) 103 who access their site. This is accomplished using the toolkit for the Secure Digital **Content** Electronic **Distribution** System 100. The selection process and what information is shown is the discretion of the Content Provider(s) 101.

Metadata SC(s) 620 received into... ...titles, such as CDS, movies and games every year, adding to the tens of thousands of content titles that are currently available. The Secure Digital **Content** Electronic **Distribution** System 100 is designed to support all of the content titles available in stores today.

The numbers of content titles that the Secure Digital **Content** Electronic **Distribution** System 100 may eventually download to customers on a daily basis is in the thousands or tens of thousands. For a large number of titles, this requires a large amount of bandwidth. The computer disk space and bandwidth needs call for a **distributed**, scalable implementation with multiple **Content** Hosting Site(s) 1 1 1. The system also supports customers all over the world. This requires overseas sites to speed delivery to the global customers.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 is designed to allow the Content Provider(s) 1 01 to either host their own Content 1 13 or share a cornmon facility or a set of facilities.

Content hosting on the Secure Digital **Content** Electronic **Distribution** System 100 consists of multiple Content Hosting Site(s) 1 1 1 that collectively contain all of the **Content** 1 1 3 offered by the Secure Digital **Content** Electronic **Distribution** System 100 and several **Secondary Content** Sites (not shown) that contain the current hot hits offered bythe Content Provider(s) 101. Thenumber of Content Hosting Site(s) III changes dependingon the... ...Should the Content Provider(s) I 01 choose to host all of their Content 113 in their own system, they can act as a single **Content** Hosting Site 1 1 1 with

or without **additional Secondary Content** Sites. This allows them to build their own scalable **distributed** system. In another embodiment, Electronic Digital Content Store(s) 103 can also act as Content Hosting Site(s) III for certain Content 1 1 3...may be redirected to another Content Hosting Site(s) 1 1 1.

2. Content Hosting Site(s) 1 1 1 provided by the Secure Digital **Content** Electronic **Distribution** System I 00 For the Secure Digital **Content** Electronic **Distribution** System I 00 the decision of which site should be used to download the Content 113 is made by the primary content site that received... ...this decision.

Are there secondary content sites that host the Content 1 13 requested? (The majority of Content 1 13 offered by the Secure Digital **Content** Electronic **Distribution** System I 00 is only located at primary sites); Where is the End-User Device(s) 109 geographically located? (This information can be obtained from... ...to download the Content I 1 3.

Secondary Content Sites
The Secondary Content Sites (not shown) host the popular Content 113 of the Secure Digital **Content Distribution** System 100. These sites are geographically dispersed across the world and are located near Network Access Points (NAPs) to improve download times. These sites are... ...Store(s) 103 are essentially the retailers. They are the entities who market the Content I 1 3 to be distributed to the customer. For **distribution** of **Content** 1 1 3, this would include Digital Content Retailing Web Sites, Digital Content Retail Stores, or any business who wishes to get involved in marketing... ...Store(s) 103 is accomplished via a set of tools developed for the Electronic Digital Content Store(s) 103 as part of the Secure Digital **Content** Electronic **Distribution** System I 00.

These tools are used by the Electronic Digital Content Store(s) 103 to.

acquire the Metadata SC(s) 620 packaged by the...variant between the broadcast based service offering and the point-to-point interactive web service type offering.

1 5
B. Point-to-Point Electronic Digital **Content Distribution** Service
Point-to-Point primarily means a one-to-one interactive service between the Electronic Digital Content Store(s) 103 and the End-User Device... ...is a block diagram illustrating the major tools, components and processes of an Electronic Digital Content Store(s) 103.

1 . Integration Requirements
The Secure Digital **Content** Electronic **Distribution** System 100 not only creates new online businesses but provides a method for existing businesses to integrate the sale of downloadable electronic Content 113 to... ...and can be largely automated and is executed only to integrate new Content 1 1 3 into the site.

The tools for the Secure Digital **Content** Electronic **Distribution** have been designed to allow integration of sale of electronic downloadable Content 113 into typical

implementations of web based Electronic Digital Content Store(s) 103... ...establishes customer loyalty with its customers and continues to offer its own incentives and market its products as it does today. In the Secure Digital **Content** Electronic **Distribution** System I 00, it would simply need to indicate which products in its inventory are also available for electronic download and allow its customers to... ...I 0 downloads. It simply passes the required information and all processing from that point on is handled by the toolset for the Secure Digital **Content** Electronic **Distribution** System 100. In another embodiment, other methods of transaction handling are also possible using tools for the Secure Digital **Content** Electronic **Distribution** System 100 to handle the financial settlement should the Electronic Digital Content Store(s) 103 wish to sell downloadable merchandise only or to segregate the...to retain a cross reference of the Content 113 being offered to this Product ID to properly interface with the tools for the Secure Digital **Content** Electronic **Distribution** System I 00. Providing this information here, allows the Electronic Digital Content Store(s) 103 to integrate this product or Content 113 into its inventory...only used by the Electronic Digital Content Store(s) 103 as input to his web service database is removed from the Metadata SC(s) 620. **Rights management** information provided by the Content Provider(s) 101, such as watermarking instructions, encrypted Symmetric Keys 623, and Usage Conditions 517 defining the permitted uses of...new Content 113 has been placed in the Content Promotions Web Site 156.

None of these notifications are a required step in the Secure Digital **Content** Electronic **Distribution** System flows I 00 but are provided as options to allow the Electronic Digital Content Store(s) 103 the opportunity to close its records on... ...is an optional process which is available to help the Electronic Digital Content Store(s) 103 feel comfortable with the accounting for the Secure Digital **Content** Electronic **Distribution** System 100.

In another embodiment, this tool can be updated to provide electronic funds transfers for automated periodic payments to the Content Provider(s) 101... ...payments upon reception of an electronic bill from the Clearinghouse(s) 105 after reconciling the bill against the Transaction Log 178.

C. Broadcast Electronic Digital **Content Distribution** Service
Broadcast primarily refers to a one to many transmission method where there is no personal interaction between the End-User Device(s) 109 and 113 as well as prepare SC(s) is also used by a satellite based Electronic Digital Content Store(s) 103 to manage and prepare **Content** 113 for **distribution** on a broadcast infrastructure. The SC(s) distributed over a Web service are the same as those distributed over a broadcast service.

X. END-USER DEVICE(S) 109
The applications in the End-User Device(s) 109 for the Secure Digital **Content** Electronic **Distribution** System 100 perform two main functions: first the SC(s) processing and copy control; and second playback of encrypted Content 113. Whether the End-User... ...to the downloadable objects, the End-User(s) may have a combination of physical and electronic downloadable merchandise in his shopping cart. The Secure Digital **Content** Electronic **Distribution** End-User Device(s) 109 are not involved until

after the End-User(s) checks out and submits his final purchase authorization to the Electronic...of times.

Until such time as the copy control standards are more stable, alternative methods of copy control have been provided in the Secure Digital **Content** Electronic **Distribution** System 100 so that it does not rely on the copy control watermark in order to provide **rights management** in the consumer device. Storage and p lay/record usage conditions security is implemented utilizing encrypted DC Library Collections 196 that are tied to the... ...algorithm. Thus use of widely accepted and proven industry standard algorithms can be used thus further enhancing Digital Content Industry acceptance of the Secure Digital **Content** Electronic **Distribution** System 100.

The second purpose of this Decryption and Re-Encryption 194 process is to remove the requirement that the original master encryption Key 623... ...encrypt the Content II 3 is used for any associated metadata needing to be encrypted.

D. The Player Application 195
1. Overview
The Secure Digital **Content** Electronic **Distribution** Player Application 195 (referred to here as the Player Application 195) is analogous to both a CD, DVD or other Digital Content player and to...as handle requests for information about the stored songs.

6. Inter-application Communication Components 1508
These components are used for coordination between the Secure Digital **Content** Electronic **Distribution** Player and other applications (e.g., Browser, helper-app and/or plug-in, etc) that may invoke the Player Application 195, or that the Player...by the Player Application 195. A typical audio enthusiast has a library of CDS holding songs. All of these are available within the Secure Digital **Content** Electronic **Distribution** System 100. The set of songs that have been purchased from Electronic Digital Content Store(s) 103 are stored within a Digital Content Library 196...

Claims:

...RNEW FOR THIS ALGORITHM & BIT RATE
1100FIG* 111201READ IDENTIFIER ON MEDIA(E.G. UPC, ISRC, ISMN OR EQUIVALENT)tloo@ 1202INDEX INTO **CONTENT** PROVIDER'SDATABASE(S) USING IDENTIFIER/ooo@ 1203RETRIEVE ADDITIONALINFORMATION RELATED TO MEDIAtlo@ 1204CREATING DIGITAL **CONTENT**FOR ELECTRONIC **DISTRIBUTION**FIG* 121301SELECT **MUSIC** TO BE ENCOD1302DETERMINE GENRE OF MUSICSELECTED/@7 1303DETERMINE AUDIO COMPRESSIONLEVELS & AUDIO COMPRESSIONALGORITHMS TO BE USED FOR ENCODING1304SELECT...

Dialog eLink: Order File History
10/K/21 (Item 14 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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TRUSTED INFRASTRUCTURE SUPPORT SYSTEMS, METHODS AND TECHNIQUES FOR SECURE ELECTRONIC COMMERCE, ELECTRONIC TRANSACTIONS, COMMERCE PROCESS CONTROL AND AUTOMATION, DISTRIBUTED COMPUTING, AND RIGHTS MANAGEMENT

	Country	Number	Kind	Date
Patent				19

English Abstract:

The present inventions provide an integrated, modular array of administrative and support services for electronic commerce and electronic **rights** and transaction **management**. These administrative and support services supply a secure foundation for conducting financial **management**, **rights management**, certificate authority, rules clearing, usage clearing, secure directory services, and other transaction related capabilities functioning over a vast electronic network such as the Internet and...

Detailed Description:

TRUSTED INFRASTRUCTURE SUPPORT SYSTEMS,
METHODS AND TECHNIQUES FOR
SECURE ELECTRONIC COMMERCE, ELECTRONIC
TRANSACTIONS, COMMERCE PROCESS CONTROL
AND AUTOMATION, DISTRIBUTED COMPUTING, AND
RIGHTS MANAGEMENT
Field of the Inventions
These inventions generally relate to optimally bringing the
efficiencies of modem computing and networking to the
I 0 administration and support... ...interactions and
consequences and ftirther relate to a secure architecture enabling
distributed, trusted administration for electronic commerce.

These inventions relate, in more detail, to a "**Distributed**
Commerce Utility" - a foundation for the administration and
1 5 support of electronic commerce and other electronic interaction and
relationship environments.

In still more detail...sound recordings, still
images, software computer programs, data), and to many
types of electronic control processes, require secure,

6
flexible and widely interoperable mechanisms for **managing** their **rights** and administering their business models, including collecting, when desired, payments and relevant usage information for various uses of their content.

All parties require infrastructure support... ...above-referenced Ginter, et al. patent specification describes technology providing unique, powerful capabilities instrumental to the development of secure, distributed transaction based electronic commerce and **rights management**. This technology can enable many important, new business models and business practices on the part of electronic commerce participants while also supporting existing business models... ...et al. specification describes comprehensive overall systems and wide arrays of methods, techniques, structures and arrangements that enable secure, efficient distributed
7
electronic commerce and **rights management** on the Internet (and Intranets), within companies large and small, in the living room, and in the home office. Such techniques, systems and arrangements bring about an unparalleled degree of security, reliability, efficiency and flexibility to electronic commerce and electronic **rights management**.

The Ginter, et al. patent specification also describes an "Information Utility" - a network of support and administrative services, facilities and installations that grease the wheels... ...Features and Advantages of the Present Inventions
The present inventions provide an integrated, modular array of administrative and support services for electronic commerce and electronic **rights** and transaction **management**. These administrative and support services supply a secure foundation for conducting financial **management**, **rights management**, certificate authority, rules clearing, usage clearing, secure directory services, and other transaction related capabilities functioning over a vast I 0 electronic network such as the... ...to competitive business realities.

The present inventions provide a "Distributed Commerce Utility" having a secure, programmable, distributed architecture that provides administrative and support services. The **Distributed** Commerce Utility can make optimally efficient use of commerce administration resources, and can scale in a practical fashion to accommodate the demands of electronic commerce...with

I 0 varying degrees of distribution.

The comprehensive "Distributed Commerce Utility"
provided by the present invention.

9 Enables practical and efficient electronic commerce and
rights management.

1 5 9 Provides services that securely administer and support
electronic interactions and consequences.

9 Provides infrastructure for electronic commerce and
other forms of human...reuse), as appropriate, local, centralized, and
1 5 networked resources. As a result, the Distributed
Commerce Utility optimally enables practical and
efficient electronic commerce and **rights management**
models that can amortize resource maintenance costs
through common usage of the same, or overlapping,
resource base.

One or more Distributed Commerce Utility commerce
models...service volume.

The Distributed Commerce Utility technologies
provided by the present inventions provide a set of
secure, distributed support and administrative
services for electronic commerce, **rights management**,
and distributed computing and process control.

The Distributed Commerce Utility support services
including highly secure and sophisticated technical
and/or contractual services, may be invoked...automated, distributed, secure process
administration and control,
o Virtual Distribution Environment chain-of-handling and
control, and
o rights administration and usage (e.g., event) **management**
29
(e.g., auditing, control, **rights** fulfillment, etc.), across
and/or within electronic networks, including
4 Cunconnected," virtually connected, or periodically
connected networks.

The Commerce Utility Systems may govern electronic process... ...consideration
(including service fees, product fees or any
other fees and/or charges) based at least in part on
content, process control (event) and/or **rights**

management,
performing audit, billing, payment fulfillment (or
provision of other consideration) and/or other clearing
activities,
compiling, aggregating, using and/or providing
information relating to use...of how disaggregation can be
implemented within a financial clearinghouse context;
Figure 25 shows a value chain disaggregation example that
also details compensation to the **Distributed** Commerce Utility;
Figure 26 shows an example value chain (payment)
disaggregation to any number of payees;
Figure 27 shows an additional example of how value...400a, and at least some certifying
functions 500a. This type of overall electronic
Commerce Utility System 90A might, for example,
be in the business of **managing** and granting **rights** on
behalf of rights holders and in handling payments
based on those rights.

The Commerce Utility System 90D 'ust to the right of
installation 90A...transactions being
managed, and a variety of other factors. Delegation of clearing
authority may be partial (e.g., delegate usage aggregation but not
financial or **rights management** responsibilities), and may be
consistent with peer-to-peer processing (e.g., by placing some
functions within consumers' electronic appliances while keeping
some more important...Utility Systems 90,
1 5 including.

Information Consumers (including for example,
people who make use of the information "exhaust"
generated by electronic commerce, electronic
transaction **management** and **rights management**
activities);
Content Rightsholders and other Electronic
Providers;
Participants in the broadest range of secure,
distributed electronic commerce transactions.;
82
U3AIIP-jU3A3 'z) ...creation and processing,
market research,
negotiation,
* control set database management,
87
e control set generation,
e process control logic,
* event flow generation,

e routing,
* archiving,
* **rights** and permissions database **management**,
o template database management,
o commerce **management** language processing,
o **rights management** language processing,
o advertising database management,
e automatic class generation,
o automatic class assignment,
o notary,
o seal generator,
88
e digital time stamp,
* fingerprint...other
consideration including service fees, product fees
and/or any other fees or charges based at least in part
on content, process control, and/or **rights**
management use.

e Supporting wide use of micro-fees and micro
payments at least in part based on content, process
control, and/or other usage transactions...disclosed in this specification fundamentally
I 0 transform pass-along from a clear threat to an important
opportunity. Because of the unique, automated, secure electronic
management of value chain **rights** provided by the ...puenqIu2 XiluDijuLuolnu 001
soomildde
Z9ZVI/96Sfl/JLJd ISCOT/96 OM
clearinghouse 300(l) is to collect and analyze information relating
to the usage of the **content** 166 directly **distributed** by creator 164,
and that another usage clearinghouse 300(2) is to collect and
analyze usage information pertaining to the usage of the work 166...countervailing
interests by offering consumer 95 a financial
incentive for more full disclosure but giving the consumer a
choice.

In this example, rights holder 164 **distributes** electronic
content and associated controls to consumer 95. The controls may
specify options for revealing usage information. The consumer
I 0 may choose.

to pay full price...protected digital
properties) to be used and not used, and any
consequences of such use and/or misuse.

Providing VIDE supported capabilities to distribute
and **manage rights** and business rules (including pre

approved and other permissions) along an ad hoc electronic value chain, where such rights and business rules are persistently supported...of, for example, mixed iconic, positional, flow diagram, and textual information, and wherein rules and controls are implemented, for example, through the use of a **rights management** language, and wherein, for example, elements or higher level representation of such elements of the rights language may directly correspond to graphical representation components.

Multiple...417,
Replication 418,
Registration 419, and
Propagation 420.

0 The rights and permissions clearinghouse 400's primary task of object registration is performed by database **management** 412.

In this connection, **rights** and permissions clearinghouse 400 may receive control sets 188 and corresponding ...for the task of distributing (via distribution function
41 0) all permissions relating to a particular property. Since permissions and/or prices may expire or **change**, **rights** and
178
sets.

Rights and permissions clearinghouse 400 may also provide a reporting function 417, issuing reports 406 pertaining to the permissions and/or prices it has issued or...have received the shared secret in the first place), the shared secret alone might be adequate to receive, for example, a permission that replaces or **updates** an expired permission.

Rights and permissions clearinghouse 400 also includes a permission negotiation engine 416 that may be used to negotiate permissions 188 that haven't been pre-approved...It may be possible in this example for a user to avoid using templates 450 altogether and instead define permissions 188 in terms of a **rights management** language (for example, a natural or computer-based language) but a large percentage of users will prefer the easy-to-use graphics interface that templates...with a mouse pointing device to fill in the options desired). In another example, a rights holder could define his or her preferences using a **rights management** language that a computer could automatically compile or otherwise process to fill
189

in rights template 450 and/or construct associated control set(s)
188...associated with certain rules and
192
controls allowing certain electronic activities such as
usage of content and/or control processes in, for
example, multiparty EDI, **content distribution**, trading
system, and/or financial transaction systems.

Generating ...and/or
authenticating steps in distributed proprietary
information, EDI, financial transaction, and/or trading
system value chain activities that very substantially
improves security for distributed **rights management**,
wherein such security can meet or exceed the security
available with centralized, online commerce models.

0 May manage at least a portion of the transactions...transmit
the container 152 to the next system (Figure 58D, block 6012).

The next system may be an additional security checkpoint system
6000 that performs **additional** processing (Figure 58D, blocks
6016,60041600696008).

EXAMPLES
Example - Electronic **Content Distribution** Value Chain
Figure 59 shows how example Distributed Commerce
Utility 75 can be used to support an example electronic **content**
1 5 **distribution** value chain 162. In the Figure 59 example, an author
164 may create a valuable work, such as a novel, television
program, musical composition, or...report might contain a list of objects registered at
the rights and permissions clearinghouse 400 by a particular
publisher, the number of requests to the **rights** and permissions
clearinghouse for **updated** or additional **rights** and permissions,
financial clearinghouse 200 summary revenue numbers for each
digital property, the number of certificates by the certifying
authority 500 on behalf of the...open the secure
container 152(9), debit the lawyer's credit card account, and pay
the appropriate provider accounts their due.

The CompAny
Preliminary to **content** transactions, a **distributed** corporate
1 5 financial clearinghouse 200A within the company 95(3), while
operating under the authority of the financial clearinghouse 200,
sends to each of...efficiency requirements as
commerce in intangibles (e.g., digital information). For tile
computer to become a true commerce appliance, a distributed,

I 0 secure, trusted **rights**/event **management** software layer (e.g., **rights** operating system or middleware) such as the Virtual Distribution Environment described in the Ginter et al.

specification is a necessity. Thus, even when tangibles rather...to a smart card or the like).

Media player 104 has a protected processing environment 154 such as a secure processing unit for use in **managing rights** and manipulating the electronic containers. The storage media 1 5 might also be played by a personal computer 124 equipped with a protected processing environment and a network connection.

Set top box 104 may be controlled by electronic controls **distributed** on the **media** and/or via the back channel. The controls require the set top box 104 to record customer usage and payment information for each property the...type of information can be very useful to advertisers and marketers.

Disney may also operate a rights and permissions clearinghouse 400. Even though permissions are **distributed** on the optical **media** in this example, the rights and permissions clearinghouse can provide supplemental control sets for various reasons. For example, the control sets **distributed** on the **media** may expire on a certain date. Rights and permissions I 0 clearinghouse 400 may issue new control sets in lieu of the expired ones. Rights...

Claims:

1 An electronic commerce and/or **rights management** system for performing at least one clearing operation, the system comprising:a first electronic appliance (I 00),5 a second electronic appliance (I 00'), and... ...the clearing operation, andthe second electronic appliance (100') performs at least asecond part of the clearing operation.

2 An electronic commerce and/or **rights management** system as in 5 claim I further characterized in that the first part of the clearing operation includes at least one micropayment aggregation task, and the second part ofthe clearing operation includes at least one payment settlement task.

3 An electronic commerce and/or **rights management** system as ill claim I further characterized in that that the first electronic appliance (100) comprises a consumer appliance, and the second electronic appliance (I 00') isinstalled, at least in part, within a clearing institution.

4 An electronic commerce and/or **rights management** system as in claim I further characterized in that at least the first electronic appliance (I 00)includes a protected processing environment (I 54).

5 An electronic commerce and/or **rights management** system as in
claim I further characterized in that the first part of the clearing operationcomprises a usage metering task (I 16).
6 An electronic commerce and/or **rights management** system as in
claim I further characterized in that the first part of the clearing operation comprises at least one task conditioned on a digital certificate (504).325claim I further characterized in that the first part of the clearing operationcomprises at least one **rights management** task.
8 An electronic commerce and/or **rights management** system as in
claim I further characterized in that the first part of the clearing operationcomprises at least one electronic currency management task.
9 An electronic commerce and/or **rights management** system as in
claim I further characterized in that most of the clearing operation isperformed by the first appliance (I 00).I 0 1 0. An electronic commerce and/or **rights management** system as inclaim I further characterized in that most of the clearing operation isperformed by the second appliance (I 00'),I 1. An electronic commerce and/or **rights management** system as inclaim I further characterized in that the system further includes a third 1 5 electronic appliance (I 00") coupled to at least... ...I 00') through the network (I 50), the thirdelectronic appliance performing a third part of the clearing operation.
12 An electronic commerce and/or **rights management** system as in
claim I further characterized in that each of the first and second appliances (I 00, I 00') are capable of performing any...of said operations may be distributed indifferent ways between the first and second appliances (I 00., I 00').
13 An electronic commerce and/or **rights management** system as in
claim I further characterized in that the electronic network (I 50) couples the first and second electronic appliances (I 00, I 00') to a commerce utility system web.
14 An electronic commerce and/or **rights management** system as in
claim I further characterized in that an electronic rights holder canelectronically choose between the first electronic appliance (I 00) and the... ...in that the first and second electronic appliances(I 00, I 00') work together to perform overall transaction clearing.
16 An electronic commerce and/or **rights management** system as in
claim I further characterized in that each of the first and second appliances (I 00, I 00') performs each of: at least... ...certifying authority operation, at least one transaction authority operation, and at least one secure directory services operation.I 0 17. An electronic commerce and/or **rights management** system as inclaim I further characterized in that the first electronic appliance (I 00) comprises a hierarchy of plural commerce utility systems (90(l),... 90(n)).
18 An electronic commerce and/or **rights management** system as in
claim I further characterized in that the first electronic appliance (100) is1 5 organization-specific.
19 An electronic commerce and/or **rights management** system as in
claim I further characterized in that the first electronic appliance (I 00) isvertically specialized.
20 An electronic commerce and/or **rights management** system as in
claim I further characterized in that the first electronic appliance (100) is specialized by territory and/or jurisdiction.2 1. An electronic commerce and/or **rights management**

system as inclaim I further characterized in that the first and second electronic appliances(I 00, I 00') communicate and coordinate as peers and in a hierarchy.
22 An electronic commerce and/or **rights management** system as in claim I further characterized in that that clearing operation includesprocessing payment related information, and performing at least one payment related transaction.
23 An electronic commerce and/or **rights management** system as in claim I further characterized in that that clearing operation includesprocessing usage related information and performing at least one usagereporting action.327claim I further characterized in that that clearing operation includes receiving at least one request, and performing at least one associated **rights management** transaction.
25 An electronic commerce and/or **rights management** system as in claim I further characterized in that that clearing operation includes issuing atleast one digital certificate.
26 An electronic commerce and/or **rights management** system as in claim I further characterized in that that clearing operation includes securelyI 0 providing directory information.
27 An electronic commerce and/or **rights management** system as in claim I further characterized in that that clearing operation includesperforming at least one process management transaction.
28 An electronic commerce and/or **rights management** systern as in 5 claim I whether the first and second parts of the clearing operation support one another.
29 An electronic commerce and/or **rights management** systern as in claim I wherein at least one of the first and second electronic appliances (100, I 00') includes a rights operating system that... ...securely and separately supplied by saidclearinghouse arrangement and at least one third party digitalinformation rightsholder.
2 A method for creating a cooperative, distributed **rights management** commercial arrangement, wherein said method comprises the steps ofa. Establishing plural commerce service arrangements for theperformance of system services comprising two or more...users and/or end-userinstallations; andc. Enabling a digital information rightsholder and/or said end-usercertificate issuer to at least in part **manage** usage **rights** related tocertain digital information as a result of said rightsholderand/or saidend-user certificate issuer associating one or more said rightsholderand/or...said digital infori-nation and/or said container to said at least one additional party.338AMENDED SHEET (ARTICLE 19)b. Establishing a programmed hierarchical **rights management**relationship between plural of said distributed commerce appliances and/orusers of said distributed commerce appliances; andc. Separately producing, at least in part in...the steps of.a. Establishing distributed commerce nodes;339AMENDED SHEET (ARTICLE 19)b. Establishing a trusted commerce utility system to at least in part**manage** use **rights** related to resources available at one or more of saiddistributed commerce nodes;c. Establishing use rights information to at least in part govern use... ...otherwise communicate one or more currency objects.340AMENDED SHIEET (ARTICLE 19). A method for supporting payment settlement related, at least in part, to electronically **rights managed** electronic commerce, said method comprising the steps ofa. Enabling a financial clearinghouse employing at least one protectedprocessing environment to securely receive payment related...processing environment at said

clearinghouse. at least a portion of said payment related information including governing payment fulfillment at least in part based upon electronic **rightsmanagement** control information processed ; andd. Securely communicating payment fulfillment information to at leastone of (1) a payment fulfillment organization, and (2) an intended recipient...and controls securely and separately supplied by at least one third party digital information rightsholder, and said local store of information.157. A cooperative, distributed **rights management** commercial system forproviding plural system services for use by digital information rightshoiders, saidsystem comprising:plural commerce service arrangements for the performance of system...users and/or end-user installations. andmeans for enabling said digital information rightsholder and/or said first end user to at least in part **manage** usage **rights** related to certain dialtal information as a result of said rightsholder and/or said first end-user associating one or more said end-user issued...communications network for communicating at least in partsecured digital information provided by a first commercial party to a second commercial party different from said **first** commercial partN a **distributed**electronic security checkpoint system comprising:at least one checkpoint electronic switch for at least in part receiving said secured digital information, and for interacting with...of end-user commerce appliances.174. A hierarchical commerce infrastructure comprising:plural trusted, distributed commerce appliances having associated users:means for establishing a programmed hierarchical **rights management**relationship between said plural distributed commerce appliances and/or said usersof said distributed commerce appliances; andmeans for separately producing, at least in part...servicing at least one of said end-user commerce nodes.176. A virtual computer comprising:a trusted commerce utility system for at least in part **managing** use**rights** related to resources available at plural distributed commerce nodes,means for establishing use rights information to at least in part governuse of physical and... ...ability to deliver or otherwise communicate one or more currencv objects. 178. A system for supporting payment settlement related. at least in part. to electronically **rights managed** electronic commerce. said system including plural distributed electronic commerce nodes located at remote end-user sites. saidsystem comprising:at least one financial clearinghouse including... ...aportion of said payment related information, said processing including atleast in part governing payment fulfillment information at least in partbased upon electronic **rights management** control information processed.372AMENDED SHEET (ARITICLE 1 9)wherein the communications arrangement securely communicates paymentfulfillment related information to at least one of (1...said rules securely and separateiv supplied by said clearinghouse facility and said at least one third party digital information rightsholder.197. In a cooperative, distributed **rights management** commercial systemincluding at least one value chain participant node, said system providing plural system services for use by digital information rightsholders, a commerce service...part, on control information provided by a second party different from said first party.381AMENDED SHEET (ARTICLE 1 9). An electronic commerce and/or **rights management** system forperforming at least one clearing operation, the system comprising:a first electronic appliance (I 00),a second electronic appliance (I 00'), andan... ...clearing operation, andthe second electronic appliance (I 00') performs at least a second part of the clearing operation.204. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first part of the

clearing operation includes at least one micropayment aggregation task, and the second part of the clearing operation includes at least one payment settlement task.205. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that that the first electronic appliance (I 00) ...consumer appliance, and the second electronic appliance (I 00') is installed, at least in part, within a clearing institution.206. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that at least the first electronic appliance (I 00) includes a protected processing environment (1 54).207. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first part of the clearing operation382AMENDED SHEET (ARTiCLE 19)comprises a usage metering task (I 16).208. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first part of the clearing operation comprises at least one task conditioned on a digital certificate (504).209. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first part of the clearing operation comprises at least one **rights management** task.2 1 0. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first part of the clearing operation comprises at least one electronic currency management task.21 1. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that most of the clearing operation is performed by the first appliance (I 00).212. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that most of the clearing operation is performed by the second appliance (100').213. An electronic commerce and/or **rights management** system, as inclaim 203 further characterized in that the system further includes a third electronic appliance (I 00") coupled to at least one of... ...I 00') through the network (I 50), the third electronic appliance performing a third part of the clearing operation.214. An electronic commerce and/or **rights management** system as in383AMENDED SHEET (ARTICLE 19)claim 203 further characterized in that each of the first and second appliances (I 00, I 00... ...of said operations may be distributed in different ways between the first and second appliances (I 00, I 00').215. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the electronic network (I 50) couples the first and second electronic appliances (I 00, I 00') to a commerce utility system web.216. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that an electronic rights holder canelectronically choose between the first electronic appliance (100) and the second electronic appliance (100').217. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first and second electronic appliances (I 00, I 00') work together to perform overall transaction clearing.218. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that each of the first and second appliances (100, 100') performs each of. at least one financial... ...least one certifying authority operation, at least one transaction authority operation, and at least one secure directory services operation.219. An electronic commerce and/or **rights management** system as in384AMENDED S14EET (ARTICLE 19)claim 203 further characterized in that the first electronic appliance (I 00) comprises a hierarchy of plural commerce utility systems (90(l),... 90(n)).220. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first electronic appliance (I 00) is organization-

specific.22 1. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that the first electronic appliance (I 00) is vertically specialized.222. An electronic commerce and/or **rights management** systern as inclaim 203 further characterized in that the first electronic appliance (I 00) is specialized by territory and/or jurisdiction.223. An electronic commerce and/or **rights management** systern as inclaim 203 further characterized in that the first and second electronic appliances (I 00. I 00') communicate and coordinate as peers and in a hierarchy.224. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that that clearing operation includes processingpayment related information, and performing at least one payment relatedtransaction.225. An electronic commerce and/or **rights management** systern as inclaim 203 further characterized in that that clearing operation includes processing usage related information and performing at least one usage reporting action.226. An electronic commerce and/or **rights management** system as in385AMENDED SHEET (ARTICLE 19)claim 203 further characterized in that that clearing operation includes receiving at least one request, and performing at least one associated **rights management** transaction.227. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that that clearing operation includes issuing at least one digital certificate.228. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that that clearing operation includes securely providing directory information.229. An electronic commerce and/or **rights management** system as inclaim 203 further characterized in that that clearing operation includes performing at least one process management transaction.230. An electronic commerce and/or **rights management** system as inclaim 203 whether the first and second parts of the clearing operation support one another.23 1. An electronic commerce and/or **rights management** system as inclaim 203 wherein at least one of the first and second electronic appliances (I 00, 100') includes a rights operating system that...

10/K/22 (Item 15 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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Country	Number	Kind	Date

Detailed Description:

...both "translations" of VDE electronic
agreements elements into modern language printed
agreement elements (such as English language
agreements) and translations of electronic rights
protection/transaction **management** modem

agreement elements. This feature requires
maintaining a library of textual language that
corresponds to VDE load modules and/or methods
and/or component... ...support the use of multiple VDE secure subsystems
in a single VDE installation. Various security
and/or performance advantages may be realized by
employing a **distributed** VDE design within a single
VDE installation. For example, designing a
hardware based VDE secure subsystem into an
electronic appliance VDE display device, and
designing...that failed to make
payments and/or report usage information to a
- 121
content provider might find that their budget for
creating permissions records to **distribute** the
content provider's **content** to users, and/or a security
budget limiting one or more other aspect of their use
of the provider's content, ...are used to carry out VDE managed
transaction related processing. These triggered
methods include independently (separably) and
- 126
securely processable component billing management
methods, budgeting **management** methods, metering
management methods, and related auditing
management processes. As a result of this feature of
the present invention. independent triggering of
metering, auditing, billing, and budgeting methods,
the present invention is able to efficiexitly,
concurrently support multiple financial currencies
(e.g. dollars, marks, yen) and content related
budgets, and/or billing increments as well as verv
flexible **content distribution** models.

support, complete, modular separation of the control
structures related to (1) content event triggering, (2)
auditing, (3) budgeting (includiner specifying ...available
remotely by telecommunication means). Required methods
(methods listed as required for property and/or appliance use)
must be available as specified if VDE controlled **content** (such as
intellectual property **distributed** within a VDE **content** container)
is to be used. Methods that control content may apply to a
plurality of VDE container ob ects, such as a class or other...or she will allow to be
reported and/or a financial
clearinghouse establishing certain criteria for use of its credit for
payment for use of **distributed content**) can be confident that
their contributed and accepted control information will be

enforced (within the security limitations of a given VDE security implementation design). This... ...can determine, for example.

(1) How and/or to whom electronic content can be ided, for example, how an electro provi iuc property can be **distributed**;
(2) How one or more objects and/or properties, or portions of an object or property, can be directly used, such as decrypted, displayed, printed...to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,
(2) **content** use control, including electronic **distribution**,
(3) privacy (regarding, for example, information concerning parties described by medical, credit, tax, personal, and/or of other forms of confidential information),
(4) management of...44A-44C show an example of a 'reciprocal" AUDIT method;
FIGURES 45-48 show examples of several methods being used together to control release of **content** or other information;
FIGURES 49, 49A-49F show an example OPEN method;
FIGURES 50, 5OA-50F show an example of a READ method;
FIGURES 51...this invention. Following this overview is a more technical 'detail description' of example embodiments in accordance with the invention.

Overview
Figure 1 shows a 'Virtual **Distribution** Environment" (NDE") 100 that may be provided in accordance with this invention. In Figure 1, an information utilit 200 connects to communications means 202 such...you can think of can be supported by virtual distribution environment 100. A few of many examples of transactions that can be supported by virtual **distribution** environment 100 include.

suollousuva,L e:@ioddnS SjjjTqTx9jd HC[A .-IO.IJU03 pue j3uTIpuuqjo =Tp, oruoipaja XIalaldwoo e saM!l-IDPJ OOT juauiuoitAua...Figure 1 also shows a publishing house 214. Publishing

house 214 may act as a distributor for an author 206. The publishing house 214 may **distribute** rigr1its to use "**content**" (such as computer software, electronic newspapers, the video produced by publishing house 214, audio, or any other data) to consumers such as office 210. The... ...from the content they apply to provides great advantages.

Use rights distributed by publishing house 214 may, for example, permit office 210 to make and **distribute** copies of the **content** to its employees. Office 210 may act as a redistributor by extending a 'chain of handling and control" to its employees.

The office 210 may...themselves are not delivered electronically by information utility 200 over lines 202, they are still part of the virtual distribution environment 100. The electronic storage **media** may be used to **distribute content**, "rules and controls,' or other information.

169
Example of What's Inside Information Utility 200
"Information utility" 200 in Figure 1 can be a collection... ...to participants within information utility 200. A "report receiver" 200e may receive reports such as usage reports from content users. A "permissioning agent" 200f may **distribute** "rules and controls" granting usage or **distribution** permissions based on a profile of a consumer's credit worthiness, for example.

- 170
An administrator 200h may provide information that keeps the virtual distribution... ...100 operating properly. A content and message storage 2OOg may store information for use by participants within or outside of information utility 200.

Example of **Distributing Content**' Using A Chain of Handling and Control'
As explained above, virtual distribution enviromment 100 can be used to manage almost any sort of transaction. One type of important transaction that virtual distribution environment 100 may be used to **manage** is the **distribution** or communication of '**content**" or other important information. Figure 2 more abstractly shows a "model" of how the Figure 1 Virtual distribution environment 100 may be used to provide a "chain of handling and control" for **distributing content**. Each of the blocks in Figure 2 may correspond to one or more of the VDE participants shown in Figure 1.

In the Figure 2 example, a VDE **content** creato 102

creates 'conten ." The **content** creator 102 may also specify "rules and controls" for distributinLr the **content**. These **distribution**-related "rules and controls' can specify who has permission to distnibute the rights to ...an electronic hiLrhwa 108 (or by some other path such as an optical disk sent by a delivery service such as U. S. mail). The **content** can be **distributed** over the same or different path used to send the "rules and controls.' The distributor 106 generates her own "rules and controls" that relate to... ...These usage-related "rules and controls' must be consistent with the 'rules and controls" specified by content creator 102.

Arrow 110 shows the distributor 106 **distributing** rights to use the **content** by sending the content's 'rules and controls" to a conten use 112 such as a consumer. The content user 112 uses the content in...shown in Figure 2 may grant specific individuals or classes of content users 112 "permission" to use certain content.

They may specify what kinds of **content** usage are permitted, and what kinds are not. They may specify how content usage is to be paid for and how much it costs. As... ...participants. "Rules and controls" provide information and mechanisms that may establish interdependencies and relationships between the participants. "Rules and controls" are flexible, and permit "virtual **distribution** environment' 100 to support most 'traditional' business transactions. For example.

"Rules and controls' may specify which financial clearinghouse(s) 116 may process payments, 'Rules and... ...example, a content user 112 generally can't change 'n@des and controls" SIDecified by a distributor 106 that require the user to pay for **content** usage at a certain rate. 'Rules and controls' may "persist" as they pass through a 'chain of handling and control," and may be "inherited" as... ...just as retail stores 'mark up" the wholesale pnice of goods. Figure 2A shows an example in which certain "rules and controls" persist unchanged from **content** creator 102 to **content** user 112; other "rules and controls' are modified or deleted by distributor 106; and still other "rules and controls" are added bv the distributor.

"Rules s privacy by limiting the information that is reported to other VDE participants. As one example, 'rules and controls" can cause **content** usage information to be reported anonymously without revealing content user identity, or it can reveal only certain information to certain participants (for example, information derived... ...revealed to allows the

privacy rights of 0 VDE participants to be protected.

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Rules and Contents' Can Be Separately Delivered
As mentioned above, virtual **distribution** environment 100 "associates" **content** with corresponding "rules and controls," and prevents the content from being used or accessed unless a set of corresponding 'rules and controls' is available. The distributor 106 doesn't need to deliver content to control the **content**'s **distribution**. The preferred embodiment can securely protect content by protecting corresponding, usage enabling "rules and controls" against unauthorized distribution and use.

In some examples, "rules and controls' may travel with the **content** they apply to. Virtual **distribution** environment 100 also allows "rules and controls' to be delivered separately from content. Since no one can use or access protected content without 'permission" from... ...the highway. Content may be used at the time it is delivered, or it may be stored for later use or reuse.

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The virtual **distribution** environment 100 also allows payment and reporting means to be delivered separately. For example, the content user 112 may have a virtual "credit card" that... ...that happen
('events") and determines which of those "events" need action by the other "processes." The "events' may include, for example, a request to use **content** or generate a usage permission. Some events may need additional processing, and others may not.

Whether an "event" needs more processing depends on the "rules...novel (so the purchase price can be charged to the
user), and treat all later requests to open the same novel as 'insignificant events." Other **content** (for example, searching an electronic telephone directory) may require the user to pay a fee for each access.

"Meter" process 404 keeps track of events... ...such limits.

Content may be supplied to the user once these processes have been successfully performed.

Containers and Objects'
Figure 5A shows how the virtual **distribution** environment 100, in a preferred embodiment, may package information

elements (content) into a 'containe " 302 so the information can't be accessed except as provided...can distnibute the object, and what other control mechanisms must be active. For example, permissions record 808 may specify a user's rights to use, **distribute** and/or administer the container 302 and its content. Permissions record 808 may also specify requirements to be applied by the budgets 308 and "other...printer 622; broadcast reception 624;
a document scanner 626; and
a "cable" 628 connecting the appliance with a 'network."
Virtual distribution environment 100 provides a ' **rights** operating system" 602 that **manages** appliance 600 and SPU 500 by controlling their hardware resources. The operating system 602 may also support at least one "application" 608. Generally, "application" 608...or "happenings" within appliance 600.

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In this example, some of the services performed by "rights operating system functions' 604 may be extended based on **additional** "components' delivered to operating system 602.

'Rights operating system finictions' 604 can collect together and use 'components' sent by different participants at different times. The...information
before storing it in secondary storage 652. If information is
- 192
encrypted before it is stored, physical access to secondary storage 652 or its **contents** does not readily reveal or compromise the information.

Secondary storage 652 in this example stores code and data used by CPU 654 and/or SPU 500 to control the overall operation of electronic appliance...SPU 500 and a CPU 654. Integration may also provide wider distribution if an integrated SPU/CPU component is a standard feature of a widely **distributed** microprocessor line. Merging an SPU 500 into a **main** CPU 654 of an electronic appliance 600 (or into another appliance or appliance peripheral microcomputer or other microcontroller) may substantially reduce the overhead cost of...electronic appliance secondary memory 652 may be, for example, an instance of ROS 602 software, application programs 608, objects 300 containing
201
VDE controlled property **content** and related information, and management database 610 that stores both information associated with objects and VDE control information. ROS 602 includes software intended for execution...information would have to be replaced by a

VDE
clearinghouse, administrator and/or distributor, as may be appropriate. This may be achieved by remotely downloading **update** and/or replacement data and/or code. In the event of a disabling and/or destruction of processes and/or information as described above, the...storage 652) with CPU 654 or other elements of an electronic appliance 600 may be the most cost effective way to store VDE secure database **management** files 610 and information that needs to be stored external to SPU 500. A host svstem hard disk secondary memory 652 used for general purpose...CROS") 602.

Rights Operating System 602
Rights Operating System ("ROS') 602 in the preferred embodiment is a compact, secure, event-driven, services-based, "component" oriented, **distributed** multiprocessing operating system environment that integrates VDE information security control information, components and protocols with traditional operating system concepts. Like traditional operating systems, ROS 602...and dedicated component
drivers for 'low end' set tops are a few of many examples can be integrated in traditional and real time operating systems
Distributed
provides **distribution** of control information and reciprocal control information and mechanisms
supports conditional execution ...different techniques than a very large appliance with high levels of usage by many users. This is another aspect of scalability.

ROS 602 provides a **distributed** processing environment.

For example, it permits information and control structures to automatically, securely pass between sites as required to fulfill a user's requests. Communications...user, user/user, user/creator, user/creator/distributor, etc.) Reciprocal control mechanisms have many uses in VDE 100 in representing relationships and agreements in a **distributed** environment.

ROS 602 is scalable. Nlany portions of ROS 602 control structures and kernel(s) are easily portable to various host platforms without recompilation. Any...control path that uses content creator structures to meter user activities; and structures created/ovirned by a financial provider to handle financial parts of a **content distribution** transaction (e.g., defining a credit budget that must be present in a control structure to establish creditworthiness, audit processes which

must be performed by...dynamically assemble independently deliverable components at execution time based on particular objects and users provides a high degree of flexibility, and facilitates or enables a **distributed** database, processing, and execution enviro=ent.

One aspect of an advantage of the component-based architecture prol@lded by ROS 602 relates to the ability...provides an array of configuration options using existing operating system components. ROS 602 also communicates with external services through the RPC 'interface to seamlessly 'de **distributed** and/or remote processing. In smaller scale prov-1 instances of ROS 602, a simpler message passing IPC protocol may be used to conserve resources...encrypted, protected form to the object switch for incorporation into the object. Such information provided by SPE 503 may - 332 include, in addition to encrypted **content** or other information, one or more PERCs 808, one or more method cores 1000', one or more load modules 1100, one or more data structures...and/or memory manager 5 718) 'swap out" of the execution space any or all of the tasks that are currentIv active, and "swap in" **additional** or different tasks.

SPE tasking managed by task manager 576 may be either single tasking- (meaning- that only one task may be active at a...may be used to allow data structure sharing between processes. To implement this "two-phase commit" process. each swap block may contain page addresses for **additional** memorv blocks that will be used to store changed information. A change page is a local copy of a piece of a data element that...

Claims:

1 A **rights management** appliance including:
a user input device,a user display device,at least one processor, andat least one element defining a protected processingenvironment,characten'zed in that the protected processing environmentstores and uses permissions, methods, keys, programs and/orother information to electronically **manage rights**.
2 In a **rights management** appliance including:
a user input device,a user display device,at least one processor, andat least one element defming a protected processingenvironment,a method of operating the appliance characterized by thestep of storing and using permissions, methods, keys, programsand/or

other information to electronically **manage rights**.
3 A **rights management** appliance including at least one
processor element at least in part defining a protected processing- 995 environment, characterized in that the protected processingenvironment stores and uses permissions, methods, keys,programs and/or other information to electronically **managerights**.
4 In a **rights management** appliance including at least one
processor element at least in part defining a protected processingenvironment, a method comprising storing and usingpermissions, methods, keys, programs and/or other informationto electronically **manage rights**.
5 An electronic appliance arrangement containing atleast
one secure processing unit and at least one secure databaseoperatively connected to at least one of said ...storing and securely processing protected modular componentappliance usage control information with said integrated secureprocessing unit.
11 A method of compromising a distributed electronic **rights management** system comprising plural nodes having protectedprocessing environments, characterized by the following steps:(a) exposing a certification private key,(b) passing at least one challenge... ...key exposed by the exposing step,(c) creating a processing environment based at least inpart on steps (a) and (b), andparticipating in distributed **rights management** using theprocessing environment created by step (c). - 998 . A processing environment for compromising a distributedelectronic **rights management** system comprising plural nodeshaving protected processing environments, characterized by thefollowing:protocol passing means including an exposed certificationprivate key for passing at least... ...defeating an initialization challenge/response security,and/or (b) exposing external communication keys, andmeans coupled to the security detecting means forparticipating in distributed **rights management**.
13 A method of compromising a distributed electronic **rights management** system comprising plural nodes having associatedprotected processing environments, characterized by the steps of.compromising the permissions record of an electroniccontainer, andusing the compromised permissions record to access and/oruse electronic information.
14 A system for compromising a distributed electronic **rights management** system comprising plural nodes having associatedprotected processing environments, characterized by means for- 999 using a compromised permissions record of an electroniccontainer for accessing...

10/K/23 (Item 16 from file: 349)
DIALOG(R)File 349: PCT FULLTEXT
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Country	Number	Kind	Date

Detailed Description:

...enable a user to securely extract, through the use of
the secure subsystem at the user's VDE installation,
at least a portion of the **content** included within a
VDE **content** container to produce a new, secure
object (**content** container), such that the extracted
information is maintained in a continually secure
manner through the extraction process. Formation
of the new VDE container containing such... ...g. when at least a portion may
be used, or what portion or quantity of
portions may be used);
(b) allow a user to combine **additional content**
with at least a portion of said extracted
content, such as material authored by the
extractor and/or content (for example, images,
video, audio, and/or text) extracted from one or
more other VDE...apply differing control information
sets to various of such portions based upon said
portions original control information requirements
before aggregation. Each of such embedded VDE
content containers may have its own control
information in the form of one or more permissions
records. Alternatively, a negotiation between control
information associated with various... ...differing metering,
budgeting, billing and/or payment models. For
example, content usage payment may be
automatically made, either through a clearinghouse,
or directly,, to different **content** providers for diSerent
potions.

enable flexible metering of, or other collection of
information related to, use of electronic **content**
and/or electronic appliances. A feature of the
present invention enables such flexibility of metering
control mechanisms to accommodate a simultaneous,
broad array of (a) dfferent parameters related to
electronic information **content** use; (b) different
increment units (bytes, documents, properties,
paragraphs, images, etc.) and/or other organizations
of such electronic content; and/or (c) different

categories... ...can be employed for content
security, usage analysis (for example, market
surveying), and/or compensation based upon the use
and/or exposure to VDE managed **content.** Such

metering is a flexible basis for ensuring payment for content royalties, licensing, purchasing, and/or advertising. A feature of the present invention provides for...invention's trusted/secure, universe wide, distributed transaction control and admini tration svstem.

These components support VDE related: object creation (including placing control information on **content**), secure object **distribution** and management (including distribution control information. financial
- 101
related, and other usage analysis), client internal VDE activities arlmini tration and control, security management, user interfaces... ...series to control information submitted by the client admini trator. At a clearinghouse, one or more VDE installations may operate together with a trusted
- 102
distributed database environment (which may include concurrent database processing means). A financial clearinghouse normally receives at its location securely delivered content usage information, and user requests...provider of original property content or appliance, or an agent for such provider (other than a clearinghouse). Payment information may be packaged in said VDE **content** container with, or without, related **content** usage information, such as metering information. An aspect of the present invention further enables certain information
- 104
regarding currency use to be specified as unavailable... ...be required to securely access "conditionally" anonymous information).

Currency and credit information, under the preferred embodiment of the present invention, is treated as admini trative **content**; support fingerprinting (also known as waterniarking) for embedding in content such that when content protected under the present invention is released in clear form from... ...VDE container content and/or control information, potential copyright violators may be deterred from unauthorized extraction or copying. Fingerprinting normally is embedded into unencrypted electronic **content** or control information, though it can be

embedded into encrypted content and later placed in
unencrypted content in a secure VDE installation
sub-system as the content
- 106
can be re-encrypted for tran mi sion. Embedding
identification information of the intended recipient
user and/or VDE installation into **content** as it
leaves, for example, an Internet repository, would
provide important information that would identify or
assist in identifying any party that managed to
compromise... ...information identifying a receiving party and/or VDE
installation can be embedded into a VDE object
before, or during, decryption, replication, or
communication of VDE **content** objects to receivers.

Fingerprinting electronic content before it is
encrypted for transfer to a customer or other user
provides information that can be very useful...support both "tran lations" of VDE
electronic
agreements elements into modern language printed
agreement elements (such as English language
- 110
agreements) and translations of electronic **rights**
protection/transaction **management** modem
language agreement elements to electronic VDE
agreement elements. This feature requires
maintainin a library of textual language that
corresponds to VDE load modules and...support the use of multiple VDE secure
subsystems
in a single VDE installation. Various security and/or
performance advantages may be realized by
employing a **distributed** VDE design within a single
VDE installation. For example, designing a
hardware based VDE secure subsystem into an
electronic appliance VDE display device, and
designing...distributor that failed to make payments
and/or report usage information to a content
provider might find that their budget for creating
permissions records to **distribute** the **content**
provider's **content** to users, and/or a security budget
- 115
limiting one or more other aspect of their use of the
provider's content, are not being...and are used to carry out VDE managed transaction
related processing. These triggered methods include
independently (separably) and securely processable
component billing management methods, budgeting

management methods, metering **management**
methods, and related auditing **management**
processes. As a result of this feature of the present
invention, independent triggering of metering,
auditing, billing, and budgeting methods, the
resent invention is able... ...concurrently
p
support multiple financial currencies (e.g. dollars,
- 120
marks, yen) and content related budgets, and/or
billing increments as well as very flexible **content**
distribution models.

support, complete, modular separation of the control
structures related to (1) content event triggering, (2)
auditing, (3) budgeting (including specifying no right
of use...remotely by telecommunication mesin). Required methods
(methods listed as required for property and/or appliance use)
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must be available as specified if VDE controlled **content** (such as
intellectual property **distributed** within a VDE **content** container)
is to be used. Methods that control content may apply to a
plurality of VDE container objects, such as a class or other
grouping... ...present invention
is that creators, distributors, and users of content can select from
124
among a set of predefined methods (if available) to control
container **content** usage and **distribution** functions and/or they
may have the right to provide new customized methods to control
at least certain usage fiinctions (such "new" methods may be...location of a VDE
arrangement, to accommodate new or modified
control information, is performed in the VDE secure subsystem
and under the control of secure **management** file updatin
. 9
programs executed by the protected subsystem. Since all secure
130
communications are at least in part encrypted and the processing
inside the... ...or she will allow to be reported and/or a financial
clearinghouse establishing certain criteria for use of its credit for
payment for use of **distributed content**) can be confident that
their contributed and accepted control information will be
enforced (within the security limitations of a given VDE security
implementation design). This... ...control information shall constitute the resulting
- 132
control information set for a given piece of VDE
managed content and/or VDE installation.

Electronic Agreements and **Rights** Protection
An important feature of VDE is that it can be used to assure the admini tration of, and adequacy of security and rights protection...to support the various underlying agreements between parties that comprise this extended agreement. These agreements can define important electronic commerce considerations including.

(1) security,
(2) **content** use control, including electronic **distribution**,
(3) privacy (regarding, for example, information concerning parties described by medical, credit, tax.

personal. and/or of other forms of confidential information),
(4) management of with control information already in place and/or by negotiation between concurrently proposed **content** control information submitted by a plurality of parties. A given model may be asynchronously and progressively modified over time in accordance with existing senior rules...further example of a chain of handling and control involving several categories of VDE participants;
FIGURE 85 shows a further example of a chain of **distribution** and handling within an organization;
Figures 86 and 86A show a further example of a chain of handling and control; and
Figure 87 shows an...many examples of transactions that can be supported by virtual distribution environment 100 include.

C home banking and electronic payments;
C electronic legal contracts;
C **distribution** of '**content**" such as electronic printed matter, video, audio, images and computer program ; and
C secure communication of private information such as medical records and financial information.

Virtual distribution environment 100 is "virtual" because it does not require many of the physical "things" that used to be necessary to protect **rights**, ensure reliable and predictable distribution, and ensure proper compensation to content creators and distributors. For example, in the past, information was
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distributed on records or disks that were difficult to copy. In the past, private or secret **content** was **distributed** in sealed envelopes or locked briefcases delivered by courier. To ensure appropriate compensation, consumers received goods and

services only after they handed cash over to a seller. Although information utility 200 may deliver information by transferring physical "things" such as electronic storage **media**, the virtual **distribution** environment 100 facilitates a completely electronic 'chain of handling and control.'

VDE Flexibility Supports Transactiom

Information utility 200 fleidbly supports many different kinds of information...at least $2.00 based on a credit account with independent financial provider 212 (such as Mastercard or VISA) may watch the video,

(2) virtual **distribution** environment 100 will "meter" each time a consumer watches the video, and report usage to video production studio 204 from time to time, and

(3... ...Figure 1 also shows a publishing house 214. Publishing house 214 may act as a distributor for an author 206. The publishing house 214 may **distribute rights** to use "**content**" (such as computer software, electronic newspapers, the video produced by pubhsbing house 214, audio, or any other data) to consurners such as office 210. The use rights may be defined by 'rules and controls' distributed by publishing house 216. Publishing house 216 may **distribute** these "rules and controls" with the content, but this is not necessary. Because the content can be used only by consumers that have the appropriate... ...and its associated 'rules and controls" may be distributed at different times, in different ways, by different VDE participants. The ability of VDE to securely **distribute** and enforce "rules and controls" separately from the content they apply to provides great advantages.

Use rights distributed by publishing house 214 may, for example...Even though the electronic storage media themselves are not delivered electronically by information utility 200 over lines 202, they are still part of the virtual **distribution** environment 100. The electronic storage **media** may be used to **distribute content**, "rules and controls," or other information.

Example of What's Inside Information Utility 200

"Information utility" 200 in Figure 1 can be a collection of... ...to participants within information utility 200. A "report receiver" 200e may receive reports such as usage reports from content users. A "permissioning agent" 200f may **distribute** "rules and controls" granting usage or distribution permissions based on a proffle of a consumer's credit worthiness, for example.

An admini trator 200h may provide information that keeps the

virtual **distribution** environment 100 operating properly. A
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content and message storage 2009 may store information for use by participants within or outside of information utility 200,
Ez=ple of **Distributing Content**' Using A Chain of Handling and Control'
As explained above, virtual distribution environment 100 can be used to manage almost any sort of transaction. One type of important transaction that virtual **distribution** environment 100 may be used to manage is the **distribution** or communication of "**content**' or other important information. Figure 2 more abstractly shows a 'moder of how the Figure 1 virtual **distribution** environment 100 may be used to provide a "chain of handling and contror for **distributing content**. Each of the blocks in Figure 2 may correspond to one or more of the VDE participants shown in Figure 1.

In the Figure 2 example, a VDE content creato 102 creates 'content.' The content creator 102 may also specify "rules and controls' for distributng the **content**. These **distribution**-related "rules and controls" can specify who has permission to **distribute** the rights to use **content**, and how many users are allowed to use the content.

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sending the
Arrow 104 shows the content creator 1
"rules and controls" associated with disk sent by a delivery service such as U. S. mail). The **content** can be **distributed** over the same or different path used to send the "rules and controls." The distributor 106 generates her own "rules and controls" that relate to usage of the **content**. The usage-related "rules and controls" may, for example, specify what a user can and can't do with the content and how much it... ...they may be different people. For example, a mu ical performing group may act as both content creator 102 and distributor 106 by creating and **distributing** its own **musical** recordings. As another example, a publishing house may act as a distributor 106 to distribute rights to use works created by an author content creator 102. Content creators 102 may use a
166
distributor 106 to efficiently manage the financial end of **content distribution**.

The "financial clearinghouse' 116 shown in Figure 2 may also be a 'NrDIF, administrator.' Financial clearinghouse 116 in its VDE administrator role sends 'administrative' information...participants. 'Rules and

controls' provide information and
mechanisms that may establish interdependencies and
relationships between the participants. 'Rules and controls" are
flexible, and permit "virtual **distribution** environment" 100 to
support most "traditional' business transactions. For example.

C 'Rules and controls" may specify which financial
clearinghouse(s) 116 may process payments,
C... ...just as
retail stores "mark up' the wholesale price of goods. Figure 2A
shows an example in which certain "rules and controls" persist
unchanged from **content** creator 102 to content user 112; other
'rules and controls' are modified or deleted by distributor 106;
and still other "rules and controls" are added by the distributor.

'Rules and controls' can be used to protect the **content**
user's privacy by limiting the information that is reported to
other VDE participants. As one example, 'rules and controls"
can cause content usage information... ...is revealed to allows the
privacy rights of all VDE participants to be protected.

Rules and Contents' Can Be Separately Delivered
As mentioned above, virtual **distribution** environment 100
"associates" **content** with corresponding "rules and controls," and
prevents the content from being used or accessed unless a set of
corresponding "rules and controls' is available. The distributor
106 doesn!t need to deliver **content** to control the **content**'s
distribution. The preferred embodiment can securely protect
content by protecting corresponding, usage enabling "rules and
controls" against unauthorized **distribution** and use.

In some examples, 'rules and controls" may travel with the
content they apply to. Virtual **distribution** environment 100 also
allows "rules and controls' to be delivered separately from
content. Since no one can use or access protected content
without "permission" from... ...who lacks permission will not have her request satisfied
(No
Go'). As another example, each user request to turn to a new
page of an **electronic** book may be satisfied ("Go'), but it may not
be necessary to meter, bill or budget those requests. A user who
has purchased a copy...the meter process.

Billing process 406 determines how much to charge for
events. It records and reports payment information.

Budget process 408 limits how much **content** usage is

permitted. For example, budget process 408 may limit the number of times content may be accessed or copied, or it may
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limit... ...container 302 is electronic rather than physical.

Electronic container 302 in one example comprises "digital" information having a well defined structure. Container 302 and its **contents** can be called an 'object 300.'
The Figure 5A example shows items "witbin" and enclosed by container 302. However, container 302 may "contain" items without...methods 1000.

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Figure 5B gives some additional detail about permissions record 808, budgets 308 and other methods 1000. The 'permissions record' 808 specifies the **rights** associated with the object 300 such as, for example, who can open the container 302, who can use the object's **contents**, who can **distribute** the object, and what other control mechanisms must be active. For example, permissions record 808 may specify a usex's rights to use, distribute and...storage medium or device;
a printer 622;
broadcast reception 624;
a document scanner 626; and
a "cable' 628 connecting the appliance with a 'network."
Virtual **distribution** environment 100 provides a 'jigbk operating =Bice 602 that manages appliance 600 and SPU 500 by controlling their hardware resources. The operating system 602 may...tjug system functions" 604 and "other operating system functions 606. The 'rights and auditing operating system fimctions' 604 securely handle tasks that relate to virtual **distribution** environment 100. SPU 500 provides or supports many of the security functions of the "rights and auditing operating system functions" 402. The "other operating system... ...scalable." A 'scalable" operating system 602 means that there can be a standardized interface across many different appliances performing a wide variety of tasks.

The '**rights** operating system fimctions" 604 are "services based" in this example. For example, "rights operating system fimctions" 604 handle summary requests from application 608 rather than...physically enclosed
within a secure enclosure. However, since it may not be practical or cost-effective to physically secure secondary storage 652 in many implementations, **secondary** storage 652 may be used to store information in a secure manner by encrypting information

before storing it in secondary storage 652. If information is...the preferred embodiment, microprocessor 520 normally
handles the most security sensitive aspects of the operation of
electronic appliance 600. For example, microprocessor 520 may
- 196
manage VDE decrypting, encrypting, certain content and/or
appliance usage control information, keeping track of usage of
VDE secured content, and other VDE usage control related...ROS') 602.

Rights Operating System 602
Rights Operating System ('ROS") 602 in the preferred
embodiment is a compact, secure, event-driven, services-based,
'component' oriented, **distributed** multiprocessing operating
system environment that integrates VDE information security
control information, components and protocols with traditional
operating system concepts. IAke traditional operating systems,
ROS 602...for 'low end' set tops are a few of many examples
C can be integrated in traditional and real time operating
systems
DistributLd
C provides **distribution** of control information and reciprocal
control information and mechanisms
C supports conditional execution of controlled processes
within any VDE node in a **distributed**, asynchronous
arrangement
C controlled delegation of rights in a **distributed** environment
C supports chains of handling and control
222
c management environment for distributed, occasionally
connected but otherwise asynchronous networked database
C real time and... ...integrated into existing operating
systems
C can support applications not specifically written to use it
Network friendly
C internal OS structures may use RPCs to **distribute**
processing
C subnets may seamlessly operate as a single node or
independently
General Background Regarding Operating Systems
An "operating system" provides a control mechanism for...RPC') internal processing request structure.

Cooperating processors may request interprocess services using a
227
ndent and can be
RPC mechanism, which is minimally time depe

distributed over cooperating processors on a network of hosts.

The multi-processor architecture provided by ROS 602 is easily extensible to support any number of host... ...permits information and control structures to automatically, securely pass between sites as required to fiffill a user's requests. Communications between VDE nodes under the **distributed** processing features of ROS 602 may include interprocess service requests as discussed above. ROS 602 supports conditional and/or state dependent execution of controlled processors... ...accessible, or carried along by the process to support execution on a remote system.

ROS 602 provides distribution of control information, including for example the **distribution** of control structures required to permit 'agents' to operate in remote environments.

Thus, ROS 602 provides facilities for passing execution and/or information control as... ...model.

The ROS 602 distribution process (and the associated auditing of distributed information) is a controlled event that itself uses such control structures. This "reflective" **distributed** processing mechani m permits ROS 602 to securely distribute
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rights and permissions in a controlled manner, and effectively restrict the characteristics of use of information **content**. The controlled delegation of rights in a distributed environment and the secure processing techniques used by ROS 602 to support this approach provide significant advantages locations in a controlled way. For example, a usage control associated with object **content** at a user's location may have a reciprocal control at a distributor's location that governs distribution of the usage control, auditing of the...VDE object 300. This application may reference structures provided by other parties. Such references , for example, take the form of a control path that uses **content** creator structures to meter user activities; and structures created/owned by a financial provider to handle financial parts of a **content distribution** transaction (e.g., defining a credit budget that must be present in a control structure to establish
- 253
creditworthiness, audit processes which must be performed...same RPC interface is used by ROS
602 in the preferred embodiment to request services within and outside of the operating system, a request for **distributed** and/or remote processing incurs substantially no **additional** operating

Claims:

...f) securely ensuring said consequences.
926. A system for secure digital tran action managementwherein digital information is encrypted by a first party at a **first**location and **distributed**, characterized by:a **first** protected processing environment for enabling thefirst party to securely associate at least a first control with saidinformation,a further protected processing environment for... ...on the first and further controls.
12 A method for secure digital transaction management
wherein digital information is encrypted by a first party at a **first**location and **distributed**, characterized by the following steps:enabling the first party to securely associate at least afirst control with said information,enabling a further party to... ...consequence at least in part on thetransmitted controls.927. A method for securely automating distributedelectronic processes including:a) providing secure, interoperable, general purpose**rights management** processing means to multiple,parties;b) establishing secure process management controls forautomatically, at least partially remotely, andsecurely supporting requirements related toelectronic events... ...electronic processes at saidparty sites to enforce interests related to saidelectronic content.
14 A system for securely automating distributed
electronic processes including:interoperable **rights management** processing meandisposed at multiple parties' sites;control establishing mean for establishing secure processmanagement controls; for remotely, automatically, and securelysupporting requirements related to...defming protected processing environments, andproviding, with a secure database server, information forprocessing by the network workstation protected processingenvironments.
29 A distributed electronic **rights management** system
comprising plural nodes having protected processingenvironments, characterized in that at least one of the pluralnodes provides a protected processing environment that performs... ...function for a client comprising at least a portion of theprotected processing environment of at least one other node.
30 In a distributed electronic **rights management** system
comprising plural nodes having protected processingenvironments, a method characterized by providing, with at leastone of the plural nodes, a protected processing environment...the electronic certificateauthenticates the user class characteristic reflected by the token;andmeans for using the certified, authenticated token as abasis for granting **rights**.
42 A system for securely **managing** a distributed
electronic commerce environment including:means for identifying an electronic commerce participantby specifying at least one user category;means for authenticating such user...request and associateduser identity; andmeans for issuing an electronic certificate specifying atleast one user class characteristic.945. A method or system of **managing rights** characterizedin that a cryptographically signed token is used to certifymembership in a class, the token is authenticated, and the classmembership represented by the token is used as a basis forgranting and/or withholding rights and/or permissions.
53 A method or system of **managing rights** characterized

in that a cryptographically signed token is used to certifymembership in a class, the status of such token is ascertained,and the class... ...by the token is used as abasis for allowing a user presenting the token to create electronicrules.
54 A method or system of **managing rights** characterized
in that a cryptographically signed token is used to certifymembership in a class, the token is validated, and the classmembership represented by...currency within a softwarecontainer, and950means for delivering the software container as payment forgoods or services.
61 A method or system for **managing rights** within an
organization characterized in that electronic containers aredistributed within the organization, the electronic containershaving controls associated therewith, the controls enforcing, atleast in part, an organizational hierarchy relating to the use ofthe containers and/or the contents thereof.
62 A method of organizational **rights management**
characterized by the steps ofdistributing an electronic container within an organizationandrestricting usage, access and/or further distribution of theelectronic container or the contents thereof within or outside ofthe organization based on electronic controls associated with theelectronic container.
63 A system for organizational **rights management**
characterized by:means for distributing an electronic container andmeans for restricting usage, access and/or furtherdistribution of the electronic container or the contents thereof951within or outside of the organization based on electronic controlsassociated with the electronic container.
64 A method of organizational **rights management**
characterized by the steps of.distributing electronic containers within an organization,andusing the electronic containers, at least in part, toadmini ter content usage by persons within the organization.
65 A system for organizational **rights management**
characterized by:means for distributing electronic containers within anorganization, andmeans for using the electronic containers, at least in part,to administer content usage by persons within the organization.
66 A method of organizational **rights management**
characterized by the steps ofdistributing electronic containers within an organization,andusing the electronic containers, at least in part, toadminister use of money within the organization.
67 A system for organizational **rights management**
characterized by electronic containers distributed within an952organization for, at least in part, administering use of moneywithin the organization.
68 A method of organizational **rights management**
characterized by the steps of:distributing protected processing environments within anorganization, andusing the environments to, at least in part, to administercontent usage by persons within the organization.
69 A system for organizational **rights management**
characterized by protected processing environments distributedwithin an organization, for, at least in part, admini teringcontent usage within the organization.
70 A method of organizational **rights management**

characterized by the steps of:distributing protected processing environments within anorganization, andusing the processing environments to, at least in part, toadmini ter use of money by persons within the organization.7 1. A system for organizational **rights management**characterized by plural protected processing environments953distributed within an organization for, at least in part,achnini tering use of money within the organization.

72 A **rights management** appliance including:
a user input device,a user ...defining a protected processingenvironment,characterized in that the protected processing environmentstores and uses permissions, methods, keys, program and/orother information to electronically **manage rights**.

73 In a **rights management** appliance including:
a user input device,a user display device,at least one processor, andat least one element defining a protected processingenvironment,a method of operating the appliance characterized by thestep of storing and using permissions, methods, keys, programsand/or other information to electronically **manage rights**.

74 A **rights management** appliance including at least one
processor element at least in part defining a protected processing954environment, characterized in that the protected processingenvironment stores and uses permissions, methods, keys,program and/or other information to electronically **managerights**.

75 In a **rights management** appliance including at least
one processor element at least in part defining a protectedprocessing environment, a method comprising storing and usingpermissions, methods, keys, program and/or other informationto electronically **manage rights**.

76 A method of electronically storing information in a
repository and distributing it on request, characterized in thatthe information is protected by associating electronic... ...at least one cryptographic key, andat least one orgam ational structure relating the key to theproperty and/or attribute.

82 A distributed electronic **rights management** system
comprising plural nodes having protected processingenvironments, characterized in that each node can perform selfadmini tering processes in response to electronic components.

83 A...the electronic transaction at the first location based at
least in part on receipt of the signal from the second location.

93 A distributed electronic **rights management** system
comprising plural nodes having protected processingenvironments, characterized in that each node can performelectronic processes in response to receipt and assembly ofelectronic components, and the node authenticates each of theelectronic components before assembling them.

94 A distributed electronic **rights management** method
comprising:performing, with at least one protected processingenvironment, electronic processes in response to receipt andassembly of electronic components, andauthenticating, within the... ...method as in claim 94 wherein the authenticatingstep includes the step of obtaining a corresponding certificatefrom a certifying authority.961. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that each node can performelectronic processes in response to receipt and assembly ofelectronic components, and the node authenticates each of theelectronic components by obtaining a corresponding

certificatefrom a certifying authority.
97 In a distributed electronic **rights management** system
comprising plural nodes having protected processingenvironments, a certifying authority that issues certificatesallowing each node to authenticate electronic components beforeassembling them to perform and/or control electronic **rightsmanagement** processes.
98 In a distributed electronic **rights management** system
comprising plural nodes each having a protected processingenvironment, a method characterized by the step of issuingcertTicates allowing each node to authenticate electroniccomponents before assembling them to perform and/or controlelectronic **rights management** processes.
99 A distributed electronic **rights management** system
comprising plural nodes having protected processingenvironments, characterized in that said nodes enforce usage962and/or access controls and is capable of electronically... ...i 4compensation from a user and/or other processing of usageinformation for subsequent tran fer to rights holders.100. In a distributed electronic **rights management** systemcomprising plural nodes having a protected processingenvironment, a method characterized by the step of enforcingusage and/or access controls and electronically obtainingcompensation from a user and/or other processing of usageinformation for subsequent transfer to rights holders.101. A distributed electronic **rights management** systemcomprising plural nodes each having a protected processingenvironment, characterized in that each node enforces usageand/or access controls based on receipt of information frommultiple other nodes.102. A distributed electronic **rights management** methodcharacterized by the step of enforcing, with a protectedprocessing environment, usage and/or access controls based onreceipt of information from multiple other nodes.103. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that said nodes are capable of at963least temporarily extending electronic credit to an... ...characterized by the step of at least temporarily extendingelectronic credit to an associated user for use in compensatingrights holders.105. A distributed electronic **rights management** systemcomprising plural nodes each having a protected processingenvironment, characterized in that said nodes are capable ofrequesting and obtaining a user-specific electronic creditassurance from a clearinghouse before granting the user rights toaccess and/or use electronically protected information.106. In a distributed electronic **rights management** systemcomprising plural nodes each having a protected processingenvironment, a method characterized by the step of requestingand obtaining a user-speciRc electronic credit assurance from aclearinghouse before granting the user rights to access and/or useelectronically protected information.964. A distributed electronic **rights management** systemcomprising plural nodes each having a protected processingenvironment, characterized in that each node is capable ofperforming and/or requesting an electronic debit or credittransaction as a condition to granting the user rights to accessand/or use electronically protected information.108. In a distributed electronic **rights management** systemcomprising plural nodes each having a protected processingenvironment, a method characterized by the step of performingand/or requesting an electronic debit or credit transaction as acondition to granting the user rights to access and/or useelectronically protected information.109. A distributed

electronic **rights management** systemcomprising plural nodes each having a protected processingenvironment, characterized in that each node can maintain anaudit trail of user activities for reporting to a centralized location,the centralized location analyzing the user activities based on theaudit trail.110. In a distributed electronic **rights management** systemcomprising plural nodes each having a protected processingenvironment, a method characterized by the steps of.965maintainin , a plural locations, audit trails of... ...activities for reporting to a centralized location, andanalyzing, at the centralized location, the user activitiesbased on the audit trail.111. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that said node can monitor useractivities and trigger the occurrence of unrelated events based... ...secure container.114. A system as in claim 111 wherein the unrelated eventis use of the protected processing environment.115. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by the step of monitoring ...activation of an application program,use of a secure container, anduse of the protected processing environment.117. A method of compromising a distributed electronic**rights management** system comprising plural nodes havingprotected processing environments, characterized by thefollowing steps:exposing a certification private key to allow a person topass a... ...and/or (b) exposing externalcommunication keys,creating a processing environment based at least in part onthe above-mentioned steps, andparticipating in distributed **rights management** using theprocessing environment.967. A processing environment for compromising adistributed electronic **rights management** system comprisingplural nodes having protected processing environments,characterized by the following:means including an exposed certification private key topass a challenge/response protocol... ...for defeating at least one of (a) an initializationchallenge/response security, and/or (b) exposing externalcommunication keys, andmeans for participating in distributed **rights management**.119. A method of compromising a distributed electronic**rights management** system comprising plural nodes havingprotected processing environments, characterized by the step ofcompromising the permissions record of an electronic containerand using the compromised permissions record to access and/oruse electronic information.120. A system for compromising a distributed electronic**rights management** system comprising plural nodes havingprotected processing environments, characterized by mean forusing a compromised permissions record of an electroniccontainer for accessing and/or... ...compromised system-wide key to decrypt and compromisecontent and/or admini trative information of a protectedprocessing environment without authorization.123. A distributed electronic **rights management** systemcomprising plural nodes having protected process'environments, characterized in that said nodes can electronicallyfingerprint content before releasing it in unprotected form.124. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by performing, in at leastone of the nodes, the step of electronically fingerprinting contentbefore releasing it in unprotected form.125. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that said nodes can embed,969within the electronic content, an electronic fingerprint contspecified... ...identif@ing a content rights holder and/oran indication of origin before including the

content in anelectronic container or allowing access to such **content**.126. In a **distributed** electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a ...information identifying a contentrights holder and/or an indication of origin before including thecontent in an electronic container or allowing access to such**content**.127. A **distributed** electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that the system includes one ormore usage clearinghouses that receive usage information fromone or more of the plural nodes.128. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by the step of receiving,with a usage clearinghouse, usage information from one or moreof said plural nodes.970. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that the system includes one ormore financial clearinghouses that receive financial informationrelating to the use of or access to content from one or more ofnodes.130. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by the step of receiving,with one or more financial clearinghouses, financial informationfrom one or more of the plural nodes.131. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that the system includes one ormore analysis clearinghouses that receive information from oneor more of the plural nodes and analyzes the receivedinformation.132. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by the step of receiving,with one or more analysis clearinghouses, information from one... ...nodes having protected processingenvironments.134. A method of providing credit for interaction withcontent to a protected processing environment node.135. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that the system includes one ormore clearinghouses that tran mits rights and/or permissioinformation to one or more of the plural nodes.136. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by the step of transmittingrights and/or permissioning information from a clearinghouse toone or more of the plural nodes 972. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that the system includes one ormore clearinghouses that periodically transmit cryptographicmaterial to one or more of said nodes, the cryptographic materialrenewing and/or replacing expiring cryptographic material.138. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by the step of periodicallytran mitting cryptographic material from one or moreclearinghouses...A secure electronic container. characterized in thatthe container contains electronic controls for controlling, at leastin part, the use of and/or access to **distributed** electronic **content**.142. A method comprising:accessing electronic controls within a secure electroniccontainer; andusing the controls for controlling, at least in part, the use ofand/or access to **distributed** electronic **content**.143. A secure electronic container characterized in thatthe container contains electronic controls that cause electroniccontent to expire on a time-dependent basis.144... ...for maintaining abitmap meter data structure including

data partitions thatsubdivide the metering information by time and/or subjectmatter.147. A distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, characterized in that the system permits at leastsome of the nodes to securely describe permitted uses ofelectronic content and securely enforces said description.148. In a distributed electronic **rights management** systemcomprising plural nodes having protected processingenvironments, a method characterized by the steps of permittingat least some of the nodes to securely describe...information, database means operatively connected tosaid protected processing environment for, at least in part,storing multimedia usage control information, and protectedtraveling objects containing **distributed multimedia** electronic**content**.189. In an electronic multimedia arrangement containinga protected processing environment, a method characterized bythe steps of storing multimedia usage control information withina database mean operatively connected to said protectedprocessing environment, and controlling, based at least in part onthe stored information, protected traveling objects containing**distributed multimedia** electronic **content**.989. An electronic multimedia arrangement cont 6 ointeroperable protected processing environments for controllingthe use of multimedia, said arrangement including component,modular, protected multimedia...one of the real time clocks.199. A method of distributing information characterized bythe steps of compressing information, encrypting the compressedinformation at the **first** location, **distributing** the encryptedinformation to one or more second locations, using a tamperresistant integrated circuit to first decrypt and then decompressthe information.200. A system for distributing information characterizedby:means for compressing information,means for encrypting the compressed information at the**first** location,means for **distributing** the encrypted information to one ormore second locations, andmeans for using a tamper resistant integrated circuit tofirst decrypt and then decompress the...agent for said first party.217. A method of governing taxation of commercial eventsresulting from electronic chain of handling and controlcharacterized by a **first** step of **distributing** secure digitalinformation to a user and specifying secure control informationcontrolling at least one condition for use of said digitalinformation and a second...storing, within the secure databases, atleast a portion of such control instructions for use by said at leastone secure processing unit.233. A **content distribution** system comprising pluralelectronic appliances containin one or more interoperable secureprocessing units operatively connected to one or more databasesfor use with at least... ...foruse in decrypting distributed, encrypted digital information, and(b) encrypted audit information, said audit information reflectingat least one aspect of use of said **distributed** digital information234. A **content distribution** method comprising:**distributing** plural electronic appliances containing one ormore interoperable secure processing unitsoperatively connecting the appliances to one or moredatabases,storing within said one or...with the search results for establishing at least one conditionrelated to the use of at least one portion of said search results.253. A **rights management** system comprising protectedinformation, at least two protected processing arrangements, anda **rights management** language that allows the expression ofpermitted operations and the consequences of performing suchoperations on at least a portion of the information processed atleast in part by at least one of the protected processingarrangements.1014. A **rights management** method comprising:providing protected information for processing

by at leasttwo protected processing arrangements, andexpressing, in a **rights management** language, permittedoperations and the consequences of performing such operationson at least a portion of the information processed at least in partby at... ...protected processing arrangements.255. A method of protecting digital informationcharacterized by the steps of encrypting at least a portion of theinformation, using a **rights management** language to describe theconditions related to use of the information, distributing at leasta portion of such information and at least a portion of... ...such information.256. A system for protecting digital informationcharacterized by:mean for encrypting at least a portion of the information,mean for using a **rights management** language to describethe conditions ...including at least oneprotected processing arrangement for securely governing at leasta portion of the use of such information.257. A distributed digital information **management** systemcomprising software components, a **rights management** languagefor expressing processing relationships between two or more ofthe software components, protected processing means for at leasta portion of the software components and at least a portion of the**rights management** expressions, means for protecting content,means for creating software objects that relate protected contentto **rights management** expressions, and means for deliveringprotected content, **rights management** expressions, and suchsoftware objects from a providing location to a user's location.258. A distributed digital information **management**method comprising:expressing, in a **rights management** language, processingrelationships between two or more of the software components,processing, within at least one protected environment, atleast a portion of the software components and at least a portionof the **rights management** expres
sions,
1016protecting content,creating software objects that relate protected content to**rights management** expressions, anddelivering protected content, **rights management**expressions, and such software objects from a providing locationto a user's location.259. An authentication system comprising at least twoelectronic appliances, at...or 290 wheresome or all of such accounting and/or other admini trativeinformation is included in such control information.1033. A method of **distributing content** characterized by thesteps of creating one or more first secure containers, associatingcontrol information with such first containers includinginformation describing the conditions under... ...with such one ormore second secure containers based at least in part on controlinformation associated with such first containers.295. A system for **distributing content** characterized by:means for creating one or more first secure containers,means for associating control information with such firstcontainers including information describing the conditions...with such one ormore second secure containers based at least in part on controlinformation associated with such first containers.296. A method of **distributing content** characterized by thesteps of creating one or more first secure containers, associatingcontrol information with such first secure containers includinginformation describing the conditions... ...new control information at least inpart as a consequence of such one or more embedding and/orsecure association operations.297. A system for **distributing content** characterized bymeans for creating one or more first secure containers,means for associating control information with such firstsecure containers including information describing the...seniority of control information system; and/orsecure distribution and enforcement of rules and

controlsseparately from the content they apply to; and/orredistribution **management** by controlling the **rights** and/ornumber of copies and or pieces etc. that may be redistributed;and/oran electronic commerce taxation system; and/oran electronic shopping... ...oran electronic catalog system; and/or1067a system handling electronic banking, electronic shopping,and electronic content usage management; and/oran electronic commerce **multimedia** system; and/ora **distributed**, secure, electronic point of sale system; and/oradvertising; and/orelectronics **rights management**; and/ora distributed electronic commerce system; and/ora distributed transaction system or environment; and/ora distributed event management system; and/ora...and associated control information,(b) a second secure container containing further at least in partprotected digital information and associated control information,W means to **distribute** said **first** and second containers to users,(d) communication means for communicating information at leastin part derived from user usage of said first container digitalinformation...

? **ds**

```
Set     Items   Description
S1  102245930   PD<20020213
S2     210207   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
DISTR-
             IBUTING OR DISTRIBUTION)(4N)(CONTENT OR CONTENTS OR MUSIC
OR -
             MUSICAL OR SONG OR SONGS OR MEDIA OR MULTIMEDIA))
S3       1824   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
DISTR-
             IBUTING OR DISTRIBUTION)(4N)((DIGITAL OR
ELECTRONIC)(2N)(WORK
             OR WORKS OR BOOK OR BOOKS)))
S4      10080   (S2 OR S3) AND ((RIGHTS OR LICENSE OR LICENSING OR
LICENSED
              OR LICENSES OR LICENSED)(5N)(MANAGE OR MANAGES OR MANAGED
OR
             MANAGING OR MANAGEMENT))
S5        382   S4 AND ((UPDATE OR UPDATES OR UPDATING OR UPDATED OR
CHANGE
              OR CHANGES OR CHANGED OR CHANGING)(5N)(RIGHTS OR
COPYRIGHT OR
              COPYRIGHTS OR LICENSE OR LICENSING OR LICENSED OR
LICENSES OR
              LICENSED))
S6         81   S5 AND ((PRIMARY OR MAIN OR FIRST OR INITIAL OR
INITIALLY)-
             (3N)(CIRCULATE OR CIRCULATES OR CIRCULATED OR CIRCULATING
OR -
             CIRCULATION OR DISTRIBUTION OR DISTRIBUTE OR DISTRIBUTED
OR D-
             ISTRIBUTES OR DISTRIBUTING))
S7         29   S5 AND ((SECONDARY OR ADDITIONAL OR UNCIRCULATED OR
UNPURC-
```

```
             HASED OR (NON(W)(CIRCULATED OR PURCHASED)))(5N)(CIRCULATE
OR -
             CIRCULATES OR CIRCULATED OR CIRCULATING OR CIRCULATION OR
DIS-
             TRIBUTION OR DISTRIBUTE OR DISTRIBUTED OR DISTRIBUTES OR
DIST-
             RIBUTING)(5N)(CONTENT OR CONTENTS OR MUSIC OR MUSICAL OR
SONG
             OR SONGS OR WORK OR WORKS OR CONTENTS))
S8         25   RD  (unique items)
S9         23   S6 AND S7
S10        23   RD  (unique items)
```

? ds

```
Set     Items   Description
S1  102245930   PD<20020213
S2     210207   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
DISTR-
             IBUTING OR DISTRIBUTION)(4N)(CONTENT OR CONTENTS OR MUSIC
OR -
             MUSICAL OR SONG OR SONGS OR MEDIA OR MULTIMEDIA))
S3       1824   S1 AND ((DISTRIBUTE OR DISTRIBUTES OR DISTRIBUTED OR
DISTR-
             IBUTING OR DISTRIBUTION)(4N)((DIGITAL OR
ELECTRONIC)(2N)(WORK
             OR WORKS OR BOOK OR BOOKS)))
S4      10080   (S2 OR S3) AND ((RIGHTS OR LICENSE OR LICENSING OR
LICENSED
              OR LICENSES OR LICENSED)(5N)(MANAGE OR MANAGES OR MANAGED
OR
             MANAGING OR MANAGEMENT))
S5        382   S4 AND ((UPDATE OR UPDATES OR UPDATING OR UPDATED OR
CHANGE
              OR CHANGES OR CHANGED OR CHANGING)(5N)(RIGHTS OR
COPYRIGHT OR
              COPYRIGHTS OR LICENSE OR LICENSING OR LICENSED OR
LICENSES OR
              LICENSED))
S6         81   S5 AND ((PRIMARY OR MAIN OR FIRST OR INITIAL OR
INITIALLY)-
             (3N)(CIRCULATE OR CIRCULATES OR CIRCULATED OR CIRCULATING
OR -
             CIRCULATION OR DISTRIBUTION OR DISTRIBUTE OR DISTRIBUTED
OR D-
             ISTRIBUTES OR DISTRIBUTING))
S7         29   S5 AND ((SECONDARY OR ADDITIONAL OR UNCIRCULATED OR
UNPURC-
             HASED OR (NON(W)(CIRCULATED OR PURCHASED)))(5N)(CIRCULATE
OR -
             CIRCULATES OR CIRCULATED OR CIRCULATING OR CIRCULATION OR
DIS-
             TRIBUTION OR DISTRIBUTE OR DISTRIBUTED OR DISTRIBUTES OR
DIST-
             RIBUTING)(5N)(CONTENT OR CONTENTS OR MUSIC OR MUSICAL OR
SONG
```

```
             OR SONGS OR WORK OR WORKS OR CONTENTS))
S8         25   RD  (unique items)
S9         23   S6 AND S7
S10        23   RD  (unique items)

>>> Retrying request [1]
```
? **logoff**

```
       16jul09 12:12:04 User264751 Session D621.2
            $2.03    1.955 DialUnits File610
     $2.03  Estimated cost File610
            $2.07    1.994 DialUnits File613
     $2.07  Estimated cost File613
            $0.69    0.666 DialUnits File634
     $0.69  Estimated cost File634
            $0.93    0.891 DialUnits File810
     $0.93  Estimated cost File810
            $1.35    1.301 DialUnits File813
     $1.35  Estimated cost File813
           $22.18   17.740 DialUnits File20
    $22.18  Estimated cost File20
            $5.38    1.546 DialUnits File583
     $5.38  Estimated cost File583
            $5.01    1.377 DialUnits File474
     $5.01  Estimated cost File474
            $2.31    0.635 DialUnits File475
     $2.31  Estimated cost File475
            $1.76    0.416 DialUnits File35
     $1.76  Estimated cost File35
            $0.85    0.198 DialUnits File65
     $0.85  Estimated cost File65
            $3.32    0.678 DialUnits File99
     $3.32  Estimated cost File99
            $0.43    0.080 DialUnits File256
     $0.43  Estimated cost File256
           $10.33    1.852 DialUnits File9
    $10.33  Estimated cost File9
           $21.69    3.887 DialUnits File15
               $3.54  2 Type(s) in Format  3
            $3.54  2 Types
    $25.23  Estimated cost File15
           $39.43    7.066 DialUnits File16
    $39.43  Estimated cost File16
           $56.32   10.093 DialUnits File148
    $56.32  Estimated cost File148
            $7.79    1.396 DialUnits File160
     $7.79  Estimated cost File160
            $8.89    1.594 DialUnits File275
     $8.89  Estimated cost File275
           $15.64    2.802 DialUnits File621
    $15.64  Estimated cost File621
           $14.93    2.676 DialUnits File636
    $14.93  Estimated cost File636
            $5.61    0.963 DialUnits File624
     $5.61  Estimated cost File624
           $50.72    4.227 DialUnits File2
```

```
$50.72  Estimated cost File2
        $9.30    1.666 DialUnits File635
 $9.30  Estimated cost File635
        $9.44    1.668 DialUnits File570
 $9.44  Estimated cost File570
        $0.44    0.427 DialUnits File387
 $0.44  Estimated cost File387
        $1.90    1.823 DialUnits File471
 $1.90  Estimated cost File471
        $1.11    1.066 DialUnits File492
 $1.11  Estimated cost File492
        $0.90    0.864 DialUnits File494
 $0.90  Estimated cost File494
        $1.01    0.969 DialUnits File631
 $1.01  Estimated cost File631
        $0.77    0.736 DialUnits File633
 $0.77  Estimated cost File633
        $0.89    0.856 DialUnits File638
 $0.89  Estimated cost File638
        $0.65    0.629 DialUnits File640
 $0.65  Estimated cost File640
        $0.67    0.641 DialUnits File641
 $0.67  Estimated cost File641
        $1.12    1.078 DialUnits File702
 $1.12  Estimated cost File702
        $0.50    0.482 DialUnits File703
 $0.50  Estimated cost File703
        $0.92    0.885 DialUnits File704
 $0.92  Estimated cost File704
        $0.84    0.804 DialUnits File713
 $0.84  Estimated cost File713
        $0.80    0.767 DialUnits File714
 $0.80  Estimated cost File714
        $0.33    0.322 DialUnits File715
 $0.33  Estimated cost File715
        $0.22    0.210 DialUnits File725
 $0.22  Estimated cost File725
        $0.71    0.680 DialUnits File735
 $0.71  Estimated cost File735
        $0.41    0.390 DialUnits File477
 $0.41  Estimated cost File477
        $1.19    1.142 DialUnits File710
 $1.19  Estimated cost File710
        $0.87    0.841 DialUnits File711
 $0.87  Estimated cost File711
        $0.42    0.404 DialUnits File756
 $0.42  Estimated cost File756
        $1.22    1.171 DialUnits File757
 $1.22  Estimated cost File757
       $13.74    2.462 DialUnits File47
$13.74  Estimated cost File47
       $49.33    4.369 DialUnits File347
$49.33  Estimated cost File347
       $40.36    7.233 DialUnits File348
          $12.60  7 Type(s) in Format  3
           $0.00  7 Type(s) in Format 95 (KWIC)
       $12.60  14 Types
```

```
    $52.96  Estimated cost File348
           $21.42    4.371 DialUnits File349
              $27.20  16 Type(s) in Format  3
               $0.00  16 Type(s) in Format 95 (KWIC)
           $27.20  32 Types
    $48.62  Estimated cost File349
            OneSearch, 51 files,104.989 DialUnits FileOS
    $24.00  INTERNET
   $508.48  Estimated cost this search
   $508.59  Estimated total session cost 105.235 DialUnits


Ended session: 2009/07/16 14:12:08
?
```